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★Miss A. Hope

(Moore)

SX

FIRES:

THEIR

CAUSES, PREVENTION AND EXTINCTION,

COMBINING ALSO

A GUIDE TO AGENTS

RESPECTING

INSURANCE AGAINST LOSS BY FIRE.

AND CONTAINING

INFORMATION AS TO THE CONSTRUCTION OF BUILDINGS, SPECIAL
FEATURES OF MANUFACTURING HAZARDS, WRITING
OF POLICIES, ADJUSTMENT OF LOSSES,
ETC., ETC.

BY

F. C. MOORE,

SPECIAL AGENT, CONTINENTAL INSURANCE CO.

PUBLISHED FOR

THE CONTINENTAL INSURANCE COMPANY OF NEW YORK.

JANUARY, 1877.

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TO

GEORGE T. HOPE,

PRESIDENT OF THE

CONTINENTAL INSURANCE COMPANY,

OF NEW YORK,

Under whose direction and instruction, in the office of the Continental Insurance Company, the writer has been, for many years, employed, and to whose valuable suggestions and intelligent criticism is largely due whatever of merit is to be found in the following pages, this volume is respectfully inscribed by

THE AUTHOR.

New York, January, 1877.

ARRANGEMENT.

While it is hoped that the following work will be found to contain much that will prove interesting to the experienced underwriter, as well as to the unprofessional reader; the arrangement of it, from beginning to end, has been with reference to that natural order or sequence in which an inexperienced agent—one who is just entering upon the duties of his new calling—would be most likely to have occasion to refer to its pages.

In accordance with this plan, the opening chapters treat, first, of the IMPORTANCE OF FIRE INSURANCE and of the relation of the agent to his company, and explain the books, papers and other AGENCY SUPPLIES sent to him as an outfit, including his commission of authority, defining his powers as agent; together with numerous useful hints as to the importance of SOLICITING.

He is, then, instructed as to the INSPECTION OF RISKS; considering, under this head, first, the MORAL HAZARD, or most important feature of a risk and applicant, and, afterward, the PHYSICAL HAZARD—first, as to the *external* physical hazard of EXPOSURES, which, like the moral hazard, should be satisfactory before the risk itself is entertained—then the *internal* physical hazard of *construction*, *occupation*, and *condition*, as to cleanliness, or negligence of tenants, pointing out the dangers of FIRES FROM CARELESSNESS, SPONTANEOUS COMBUSTION, unsafe KEROSENE, GAS MACHINES, and other CAUSES OF FIRES.

Then follow suggestions as to FIRE DEPARTMENTS and WATER SUPPLY; instructions as to RATES and LINES; complete instructions as to the WRITING OF POLICIES, with the best methods of insuring the various interests in property; directions as to the manner of REPORTING RISKS TO THE COMPANY, both by daily and monthly report, with full instructions as to the MAKING OF DIAGRAMS and sundry rules governing the conduct of CORRESPONDENCE; instructions as to CANCELATION, where such action may be necessary, and TABLES OF SHORT RATES; directions as HOW TO PROCEED IN CASE OF FIRE and HOW TO PROCEED IN CASE OF LOSS; followed by explicit instructions as to the INSPECTION OF SPECIAL HAZARDS with a very full list of risks, *alphabetically arranged* for reference, showing the special features of manufacturing and other hazards; the whole concluding with a collection of FORMS for policies, endorsements, transfers, privileges, etc.

The reader will observe that the arrangement of the work, throughout, is indicated clearly by the running heads of pages and by the "face type," which has been employed to give prominence to the rules and practice of the Company, the smaller type having been reserved for explanations and statistics.

THE IMPORTANCE OF FIRE INSURANCE.

The Importance of Fire Insurance and its influence upon commerce and manufactures are not generally understood or appreciated. Even the reflecting are apt to think that, because Fire Insurance was almost unknown before the last century, and has only grown to importance within the present one, the business world could dispense with it as easily as did our ancestors. They forget that it has become a necessity of trade ; that without its assuring protection, undertakings of the magnitude at present readily assumed, would never be attempted ; ventures are made, without hesitation, which would appal those embarking in them if liable to miscarry through a single fire ; large values are boldly collected to meet the requirements of commerce, where an accidental conflagration might destroy them in a night ; loans are made by the capitalist on insured buildings for many times the value of the land on which they stand, simply because the insurance policy, as collateral between him and loss, makes them valuable for security ; merchants sell their goods on extended credits, knowing that, although the misfortune of fire may overtake the purchaser, his insurance indemnity will enable him to pay for them not less readily than before ; vast industries giving employment to thousands of operatives and supporting whole towns by their enterprise, testify not more to the energy of their projectors than to the confidence they repose in the protection which insurance extends to their undertakings, and to-day, insurance is as certainly a necessity of commerce and manufacture as is the railroad or telegraph, or steam-power itself.

All transactions of any magnitude recognize it as an essential factor. It is closely and inseparably interwoven with every scheme of profit and trade, a strong, continuous warp-thread which lends security to the fabric and, without which, *it is doubtful if the temerity of capitalists would meet the necessities of the poorer population for employment!*

In this view it becomes a serious question as to what might be the result if this important factor of all business calculations were suddenly to be eliminated ; if the wholesale destruction of property, such as occurred at Chicago and Boston, for instance—and which is likely to be repeated elsewhere—should, some day, check the recuperative power of companies, *i.e., the inclination of stockholders to advance new capitals.* Can the consequences be even approximately estimated of the sudden and inevitable result of contracted enterprise and over-cautious investment and the calling in of loans *above the mere value of the land on which expensive structures stand.*

No one can estimate the consequences if a fire, as extensive in the area covered as that of Chicago, should take place in New York—the peculiar resort, for business, of insurance companies—and what city is secure from destruction? Scarcely had the underwriters of Boston ceased congratulating themselves upon their substantial buildings, efficient fire department, and immunity from the high winds of the western metropolis, ere they sank beneath the overwhelming calamity of their own city!

Is the subject not a serious one for the country, and worthy the profound consideration of statesman and financier, of capitalist and laboring man?

If we compare the slow recovery of London from its great fire of 1666 with the wonderful reproduction of Chicago and the substantial and rapid restoration of Boston, can we doubt that the great recuperative power of both cities was largely due to their insurance indemnity, and that, without it, they might still be struggling, to attain to the prosperity which they reached within three months after their destruction!

In Chicago alone the amount paid by the underwriters to its citizens was nearly sixty millions of dollars—almost, if not quite, one-half of their entire loss—while at Boston a still larger proportion of the loss was made up by the insurance companies

Without, in this place, attempting to explain the manner in which the lately enacted Safety Fund Law of the State of New York ensures the prosperity of Fire Insurance Companies, and provides, by the formation of new capitals *out of the earnings of prosperous years*, for the uninterrupted protection of all policy-holders outside of a destroyed city—a task which we reserve for another chapter—we shall proceed at once to a consideration of the vast and important responsibilities resting upon the officers and agents of insurance companies in so strengthening the companies they represent, not only by avoiding unprofitable risks and inadequate rates, but by the energetic and judicious accumulation of such a number of distributed risks as will enable their companies to meet exceptional disasters and extraordinary losses.

That he may properly discriminate between safe and unsafe risks, and decide as to adequate rates of premium, it must be evident that the information of an underwriter should be varied and extensive. He should know, if possible, something of every other business whose hazard he undertakes to insure.

There is probably no calling requiring so intimate a knowledge of every other as this. He who assumes the risk of a flour mill, for example, should know more of its dangers than the miller himself. Indeed, it is doubtful if an underwriter can be too well informed on any subject, or that he would be too well qualified for his profession if he could serve a life-time at every other. Drawing a greater number of contracts in a year than do many lawyers in a life-time, and standing often face to face with the most perplexing questions of jurisprudence, it may be questioned if he should know less of law than does the attorney who has made it his profession.

Seriously affected by every discovery of the chemist, and liable, at any moment, to have his chances of loss on whole classes of risks alarmingly increased by new chemical combinations which follow each other as rapidly as the changes of a kaleidoscope, he should know not less of them all than does the chemist himself.

In short, there is scarcely a science, art or manufacture with which he should not be more or less familiar, and if the successful conduct of any one business or calling requires a life-time of study and application, how much more should the business of insurance—which demands a knowledge more or less intimate of every other—require life-long study and the closest and most constant observation.

In the following pages it has been our aim to place before agents, as briefly as possible, such facts as have been demonstrated in a business extended over the entire country for many years, the statistics of which have been carefully preserved and closely studied. During this time we have had ample opportunity to observe the successes or misfortunes of other companies in the same business, and we think no intelligent agent, *in the conduct of our interests at least*, will insist upon substituting for theories of cause and prevention, of profit and loss, of adequate rates and desirable risks, which we present for his consideration and guidance, any opinions he may himself have formed, *from a less extensive experience in a more contracted field of observation.*

AGENCY SUPPLIES, BLANKS, &c.

The following supplies are furnished by the company:

Commission as Agent.--Usually fastened in the front part of the Policy Register.

Policy Register.—(To be considered confidential. Not to be exhibited to any one without the consent of the company.) In which all insurance contracts are to be entered *on the day a policy is made binding*, and from which the policy itself is to be copied.

Policies.—The account of policy and renewal blanks is a very important one, and a careful record must be kept of them. The agent is charged with the number sent to him, from time to time, and credited with the number written. All blanks "spoiled" or "not taken" should be returned with the monthly account as vouchers. *Do not tear off and send the signatures merely.*

APPLICATIONS, SURVEYS, &c.

Of Ordinary Hazards—Brick and Frame.

Farm and Homestead Property.

Special Hazards—Cotton and Woolen Mills, Grist Mills, Flouring Mills, Ordinary Special Hazards, Paper Mills, Saw Mills, Pork Houses, &c., &c.

Envelopes.—Large, addressed to company.
Small " "
For Policies.
Large Plain, for writing to customers.
Small " " " " "

Daily Reports.—Blanks for reporting risks to the Company. Do not alter the size of these blanks by tearing off margins. They are made to file in our books.

Monthly Account Blanks.—For reporting the business of the month.

Endorsement Reports.—Small blanks for reporting all endorsements made upon policies, changes of ownership, assignments, etc., etc.

Expiration Notices.—The best expiration notice for a desirable risk is the *renewal itself*, placed by an active agent in the hands of the assured, at least twenty days before the expiration of the policy.

Return Premium Receipts.—To be taken when any portion of the premium is returned.

Advertising Material.—Circulars, English.
" German.
Blotting Pads.
Calendars.
Large Show Cards.
Tin Signs.
House Plates, etc., etc.

All advertising material to be judiciously used. It is intended by the Company to reach property-holders, and not to be wasted carelessly on inquiring children or other unprofitable applicants.

Book of Instructions.—The property of the Company, to be returned if the agency is withdrawn.

Insurance Map.—See page 138.

IN MAKING REQUISITION FOR SUPPLIES, examine carefully to see whether any other blanks than those immediately needed are likely soon to be required. If so, save the company time, trouble and expense by asking for them at the time.

Do not pay any express charges on packages received without taking a receipt to forward with the account and enable the company to collect the overcharge in New York. *All packages are prepaid at the office in New York.*

COMPENSATION.

The compensation allowed to agents is fifteen per cent. of the premium collected. This will amply remunerate an energetic agent for his time and trouble, and as the same commission is paid upon renewal premiums as upon new policies, a business, once built up, becomes a permanent reliance, requiring little effort to keep it together, and each new risk secured increases the amount of annual income.

It should be the aim of an agent to seek the best classes of risks, and not to be tempted from doing a safe business by the high rates of poor ones, since he can only retain his companies by doing a profitable business for them, and in case he should lose the agency through losses due to his negligence or poor judgment, he may find it difficult to secure others.

The time lost in trying to induce companies of experience to accept poor, high-rate risks will be found to more than balance any extra amount of commission obtained on them.

It may be well to state, for the information of those agents who regard the commission of fifteen per cent. as too low, that *it amounts to more than the average profits of successful companies* on their business. The agent, *without running any risk* of invested capital, is really better paid than his company. The average business of all the companies reporting to the New York Insurance Department for a long series of years showed a net gain of *less than ten per cent.*, and that department has no record of the losses of the many companies which have become bankrupt from losses.

No company can afford to risk its capital and pay a larger commission; and *an agent will find it to his interest to decline the agency of any company offering a larger commission unless on the basis of a greatly higher rate of premium than the tariff requires.*

INTEREST OF AGENT AND COMPANY IDENTICAL.

It must be evident that the interests of the agent and the company are identical. If the company is conservative, careful and well managed, and the agent successful and energetic, the connection is likely to prove a permanent one. No company would wish to change an agent who steadily makes money for it, and the agency of a conservative company may safely be considered a reliance for the lifetime of the agent and a legacy to his family. It is, therefore, very important for an agent to assure himself, before entering into so important a relation, that *the company is worthy of his best efforts and representation.* Nothing can be more humiliating or embarrassing than for an active and intelligent man to find, after months or years of honest labor, that the company with which he has identified himself, and persuaded his friends to insure, has been unsound from the start, and proves unreliable in the hour of need. The business of a lifetime is lost by building on an unsafe beginning. It is difficult to convince men, who find that their policies are worthless after their property has been destroyed, that the agent upon whom they relied for a proper understanding of his profession and an accurate knowledge of the company he represents, has acted honorably and in good faith towards them; for while the numerous failures of insurance companies, during the last few years, has led most men to examine for themselves into the standing of companies in which to insure, there are still many business men who rely implicitly upon the recommendations of the agent as to the reliability of his companies, and do not fail to hold him strictly to account, if they lose by reason of his neglect to inform himself of their condition. Although an agent may represent twenty good companies, the failure of a single "wild cat" might lose for him the confidence of the public.

It is a cruel wrong to a confiding patron and friend to leave him in the hour of his misfortune *with a worthless policy.*

The relation a Confidential one.—Though an agent may represent many different companies, his relation to each is that of a separate, individual trust. All of its books and instructions *are strictly confidential, and should be shown to no one without its consent.*

An Agency may be withdrawn at any time, and the commission rescinded, if the company so elect.

POWERS OF AN AGENT.

These are plainly defined in his commission of authority, and the printed and written instructions of the company. *He cannot delegate them*, and all of his policies and renewals signed by any one else, even though by his direction, are absolutely void and of no effect. He cannot exceed the powers expressly given to him, or bind his principal in any other direction than as expressly laid down in his instructions and commission; and to attempt to do so would only make him liable to a party suffering any loss in consequence of his unwarranted assumption of authority.

The most serious and inexcusable mistakes are sometimes made by agents as to their powers, some even inferring that the mere promulgation by the company of a printed tariff of rates implies authority to write upon every risk mentioned in it. The only safe rule is for an agent to refer to his commission and policies, and to assume that *powers not expressly granted* are, for some good reason, withheld. In case his commission is not sufficiently liberal to meet the necessities of his business, he should write to the company and explain the circumstances.

SOLICITING.

The success of an agent depends very largely, if not entirely, upon energetic soliciting. The expediency of insurance and the merits of his company must be urged *by personal application to property holders.*

It is a mistake to suppose that advertisements in newspapers, printed circulars, or conspicuous office signs, will secure patronage; and it is a false modesty which makes an agent hesitate to introduce either the subject of insurance or his company to the attention of property owners—whether acquaintances or not—unless his company is of questionable character and unworthy of his recommendation.

He who considers himself above the earnest, sincere effort which his chosen business requires, stultifies, himself, and deserves, and usually meets with, indifference from all honest men ; while the agent who persistently and intelligently improves every fitting opportunity to bring the merits of his company to the notice of the public, seldom fails to secure patronage and respect. Indeed, if we may judge from the success which the weakest and most unreliable companies sometimes meet with, in localities where they are fortunate enough to secure energetic representatives, it would seem that it is not always necessary even for an agent to have sound companies if he be only *determined to succeed;* and it sometimes happens that such an agent will actually persuade an ignorant policy-holder to exchange the protection of a reliable company for his worthless policy! How much rather should an agent succeed who represents a company of undoubted strength, of fire-tried reputation, well managed by experienced officers, and numbering, among its directors, the first merchants of the land!

A successful agent should not only know the merits of his own company and how to explain them, but he should observe the weak points also of unprincipled adversaries. It is the duty of an honest man to expose fraud and deception wherever he may meet with it. On the other hand, he will not misuse the time in assailing an honorable competitor, *which might be better employed in explaining the merits of his own company.*

To work effectually he must work *intelligently.* Some classes of customers require more explanation than others. All men, for instance, do not so readily understand a proposal to insure their property "at 1¼ per cent.," as if stated "at $12.50 per $1,000." The difference of $2.50, also, between one per cent. and 1¼%, seems less important to many, especially *where a stronger company is secured*, than does the difference in rate.

The occasional indifference of those who claim to be intelligent business men, as to the strength and standing of companies, in considering questions of rates, is most surprising.

If a merchant is offered the notes of two different individuals—the one thriftless, irresponsible, and unreliable, and the other possessed of an ample fortune, accumulated by well directed energy and economy, and with an established reputation for meeting his obligations—he is not long in deciding as to the relative value of the two promises, *especially if they have a year to run.* But the same merchant, in considering a proposal for an insurance of ten times the amount of such a note, will sometimes accept the policy of a worthless company, simply because he gets it a dollar or two cheaper than that of another, possessed, possibly, of twenty times its assets, and with a reputation established by years of trial and fire! Can anything be more inconsistent than the conduct of a business man who is thus cautious and particular as to a note for a few hundred dollars, *but who carelessly places insurance policies for thousands of dollars in his safe without reading them, or satisfying himself as to the reliability of the companies?*

It is the duty of an agent to qualify himself, by close observation and study, to explain the strength of his company, and to urge the desirability of reliable insurance upon property holders; to convince them by persistent effort, clear and logical argument, and apt illustrations, that so-called "cheap" insurance is not *insurance*; that a company can no more afford to sell its indemnity below cost than can the merchant his goods;

and that *what rate would be below the cost of carrying his risk*, as one of a large class, is almost as easy of ascertainment as the cost of any commodity on his shelves.

It is advisable to secure the custom of enterprising builders and architects. In this way many desirable risks may be obtained, and the foolish indifference of some property holders as to what company they insure with be turned to advantage. The purchaser of a building is generally willing to accept an assignment of the polices in force on it at the time of his purchase, and he can have less objection if they are those of reliable companies. For this reason the policies should be written, if possible, for a year, the charge for the extra hazard of the builder's risk at short rates (of say 50c.) for the term of it being added to the annual rate. Renewals of such policies should be written and delivered at least twenty days before expiration.

A good agent can, in most cases, retain business once secured.

A desirable feature of builders' risks is *the opportunity they afford a careful agent to discover faults of construction, which are not apparent after the buildings are finished, and which may, if he is true to his profession, be corrected in time.*

The risks of a certain class of speculative builders, however—often men of poor judgment—who erect expensive structures and rows of buildings in advance of any possible demand for them, and which are therefore mere "experiments," should be avoided. (For full instructions as to the insurance of builders' risks see page 46.)

A pocket EXPIRATION BOOK—for which an ordinary, cheap diary is well adapted—should be kept, in which to note the date of expiration of insurance which has been promised to the agent. Many persons who will not give a positive assurance as to their business, *will not hesitate to inform an agent when their policies expire;* and if he keeps a record of them, he may gather the fruit *when ripe,* by calling say twenty or thirty days beforehand. It is generally useless to argue with a man whose policies have a year to run—unless his companies are utterly worthless and afford him no protection whatever—or to apply *after renewals have been placed in his hands by an enterprising agent who, taking advantage of the natural and very proper reluctance which most men have to return a renewal once placed in their hands,* IS SURE TO DELIVER HIS AT LEAST TWENTY DAYS BEFOREHAND.*

INSPECTION OF RISKS.

The Moral Hazard.—The number of fires caused by incendiarism, as compared with the number from all causes, is enormous. A carefully compiled table of the fires in the City of New York for twelve years showed *over thirty-three per cent. due to this one cause,* and this in a city exceptionally well managed by a fire marshal, police, paid fire department, and insurance patrol. A comparison made by seventy insurance companies of their experience, showed that thirty-two per cent. of their losses were attributed by them, directly or indirectly, to the assured. Our own experience is somewhat more favorable, but we have, for years past, directed our attention unceasingly to this feature of the business, and have been fortunate enough to escape losses which might otherwise have fallen to our lot.

We cannot too earnestly impress upon our agents, everywhere, the necessity of care. The agent who contributes by over-insurance or in any way, to an incendiary fire, *endangers the common safety and commits a crime against society.*[*] Constant supervision and watchfulness, with a keen judgment of men and values, are necessary to keep our losses within the figures to which we have hitherto succeeded in confining them. Not only must property be worth more than it is insured for, but *it must be a productive and paying investment to its owners.* Unless this is the case, its safety is not likely to be a subject of anxiety to them. It must be borne in mind that we sometimes lose as much in consequence of *the indifference of honest men to the safety of property which brings them no income, and which is fully insured, as by the designing villainy of those who do not scruple to apply the match.* Indeed, let this element of safety be once removed—this safeguard which so often is the only barrier between us and loss—this protection which is greater than iron-doors or fire-walls—*the anxiety of an owner for the safety of his property*—and the chances of our escaping loss become so remote that we prefer to cancel our policy at once. It is for this reason that the sum of our losses follows the ups and downs of trade, like a barometer of misfortune. When certain classes of risks are making money for their owners—notwithstanding the fact that, at such times, there is the extra hazard of over-work and forced production—the fewest losses take place; but let the times change, and the manufacturer (who, while he had profitable contracts to fill, examined critically *for himself*, and with the proverbial thoroughness of "the master's eye," lest any untoward accident should interrupt his good fortune,) becomes careless and indifferent to danger—especially if fully insured.

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* For other useful hints as to soliciting, see under head of "Lines," page 101, and "Rates," 103.

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[*] **While over-insurance causes fires, a proper amount of insurance may prevent them by teaching a malicious vagabond that he cannot harm his enemy by burning his property, as the insurance company's interposition restores the loss.**

In this way the moral hazard of *unproductive* property, even when it is insured below its value, may become greater than that of over-insured but productive and profitable property. *Value* is not, therefore, the only thing to be taken into consideration, although more important, perhaps, than any other. It must also be remembered that *cost* is not always a safe test of *value*—especially in the case of buildings which, through poor management, miscalculation, overcharges, or exceptionally high prices of labor and material, can often be replaced for much less than their original cost. Evidences of this occur in the experience of all insurance companies, when adjusting their losses, *proposals being often received from the very builders by whom destroyed buildings were originally constructed, to replace them for a much smaller sum than that originally charged.* Especially is this the case in dull seasons, when neither labor nor materials are high.

Over-valuation is the rule, and not the exception. It is natural for an owner to over-estimate his property. He seldom makes proper deductions for depreciation from age, wear, use, change of fashion or system; but the underwriter must be more careful, and discriminate intelligently between old, shelf-worn and unsalable stocks, for instance, and new, stylish and salable goods.

Buildings, through mismanagement, are often found to be either too large or too small or, in other respects, unsuited for the purpose for which they were constructed, and if not available for this purpose are almost valueless for any other. It is clear that, in such cases, the cost of the building is no indication of its market value. A proper allowance should also be made for the probable deterioration of the property *during the term of the insurance.*

It is difficult to give any safe rule for estimating values. In the case of buildings, the opinion of some reliable builder may be consulted. In the case of stocks of merchandise, the opinions of others in the same line of business may often be obtained without difficulty, and such opinions are generally very accurate. In stocks where a single class of merchandise is kept, such, for instance, as clothing, boots and shoes, &c., a rough estimate may be made by counting shelves and estimating the value on each, but this is unreliable. Every agent, however, has trusted acquaintances in each line of business, whose opinion may be obtained to assist his own.

Having determined upon the fair cash value of the property to be insured, the agent should limit the insurance to a safe figure as compared with it. This will vary according to the risk. In the case of dangerous special hazards, requiring care and watchfulness on the part of their owners, it should be seen that the owner retains such an interest above the amount of insurance as will insure such care; not over sixty per cent. of value should, as a rule, be permitted. When the rate is high an owner will probably not wish to pay for more. Where, however, the owner of property is willing to pay a high rate, and desires a large line of insurance, it will be prudent to decline the risk. It is safe to presume that he has some unusual cause for anxiety. The greatest caution should be observed in such cases; few men who have no good reason for anxiety are willing to sacrifice an undue portion of their earnings for insurance.

The amount of insurance, where an agent carries the whole of it in one policy, is, of course, easily limited. He should, in such cases, plainly inform the assured that no other insurance is permitted; calling his attention to the fact that the policy itself prohibits, in its printed conditions, any other insurance on the property without the written permission of the company. If other insurance is permitted, it should be *limited to a safe amount*, as follows, for instance, "$5,000 *other concurrent insurance permitted.*" The permission should not be general or without restriction as to amount.

Certain classes of merchandise and the usages of trade seem to require some relaxation of this rule, both as to the restriction of amount and the permission in the policy. Grain in elevators, for instance, cotton or other merchandise in public warehouses, may sometimes be insured to nearly the full value for purposes of collateral security for loans or advances, as the property is not in the custody of the owner, but of a disinterested warehouseman, who can have no interest in its burning, the rules of the warehouse being strict as to the admission even of the owner of merchandise unless in the presence of some one connected with the warehouse. In these cases the companies are not dependent upon the assured for a proper care of the property, and need not, therefore, insist on that retention of interest in the property which is so necessary to its preservation, and always desirable, where the subject of insurance remains in the custody of the assured himself. A very large proportion of the moral hazard inseparable from full insurance is removed where the property is in the safe custody of a disinterested third party—such as the warehouseman or elevator owner.

It very often happens that the agent finds his task of declining to insure the full amount asked for, a very embarrassing one, especially when the applicant is an honest, well-meaning citizen and a personal acquaintance. An easy way out of the difficulty is to urge the folly of paying for a larger amount than is needed, since the company cannot pay more than the actual loss. Ignorant people are very apt to think they will receive, in case of loss, the full amount of the policy they have paid for; they should be undeceived. Insurance is a contract of *indemnity* only. Indeed, it may be questioned if the interests of society do not require that a man should not be permitted to insure for the full amount of his loss, *that he may have that incentive to carefulness which the safety of his neighbor requires.* This might be secured by the "three-fourths clause" (see page 287) in all policies. It is certain that *no one should profit by a loss.* Probably the immunity of the City of Paris from fires is largely due to the rule making each citizen responsible for those originating in his premises.

Owners of property who are desirous of selling are apt to seek an excessive insurance, thinking that the amount which insurance companies are willing to carry upon a property may be regarded by purchasers as an evidence of its value, *as indeed the amount insured would be if all underwriters were true to their duty.*

The aim should be to insure only honest and reliable men—those of careful habits, who keep books of account and take inventories of their stocks at least once a year, entering them in a book for the purpose, and thus keep the run of their business. Do not insure litigious or quarrelsome men. They are sure to have enemies, and often unscrupulous ones. Inquire carefully whether any threats have been made to burn the property; whether any fires from "unknown causes" have occurred either to the property on which insurance is sought or to any other belonging to the applicant.

Unless the applicant is a well-known citizen, *his antecedents should be rigidly inquired into.* Do not hesitate to require references of "new comers." In every town are to be found itinerant tradesmen, many of whom are unprincipled in every respect. Unless informed as to the antecedents of such parties, decline to insure them; and in case references are found to be satisfactory, *advise the company fully by letter in making the report*, to save them the trouble of writing for information, for which they will otherwise surely ask.

Decline to insure "exceptional property" of parties, as where they insure only on certain buildings, carrying others themselves. There is sometimes a reason for it which we ought to know. Some men insure their *barns* only, carrying the dwellings themselves; and railroad companies are very apt to insure only such bridges, depots, or other structures, as they consider dangerous.

Inquire whether applicants have been trying to sell out, and why. Have they been in the habit of regularly insuring against loss by fire, or have they suddenly become impressed with the value of insurance. Such changes of opinion will always bear investigation. Avoid heavily mortgaged property, especially if mortgages are falling due; and decline, as a rule, *all property, the title to which is a matter either of dispute or litigation, buildings or merchandise in the hands of sheriffs, U. S. marshals, &c., &c.*

Leases should not be insured unless the applicant has a good bargain. He may have taken the property during prosperous times, and be losing money in consequence of a change of trade, &c.

Avoid "**Experiments**"—undertakings the result of which is, at best, problematical, "new departures," &c. The insurance company too often furnishes the money *in case the enterprise fails.*

A large and expensive grain elevator may be located where it cannot possibly receive grain enough to fill it, and disappoint its owners. A large manufactory, fitted out with costly machinery, may be erected to manufacture some article which does not meet with a ready or steady sale. An expensive stock of silks and laces is taken to some country town, whose people are possessed of more intelligence than money, and finds no purchasers.

Every undertaking of some men is an experiment, on account of the entire absence of judgment displayed. If stocks of merchandise are purchased, they are not suited to the trade, or are too large for the demand. If a manufactory is erected, it is too large or too small for the purpose, or impractical for some other reason which might have been foreseen. The result is, and must inevitably be, failure, and an insurance company will do well to avoid such risks, relying upon the exercise of wise caution and discrimination on the part of its agents, who should always remember that *upon the probabilities of success of undertakings depend, in very many cases, the probabilities of profit for the underwriter.*

Do not insure **Branch Stores**; they nearly always have shelf-worn, unsalable stocks, and owners have been known to transfer large amounts of merchandise from one store to the other without keeping proper entries.

Country Stores not occupied in part as family dwellings, or which are not near dwellings, especially at cross-roads locations, having small custom and a poor trade, have always been losing risks to insurance companies—possibly because their situation and vacancy at night admit of fraud, on the part of the owners, by removal of the goods before a fire, or of robbery by others, and subsequent burning to cover traces of the crime.

Do not insure "nuisances"—those risks which, by reason of some disagreeable feature, become obnoxious to persons living near them, *the value of whose property is affected by them;* such as **Slaughter Houses, Bone Boiling Establishments, Soap Factories,** some classes of Chemical works, &c., &c. They are very liable to burn.

Decline **Barns or Stables situated in the outskirts of towns, especially if unpainted, dilapidated, or unconnected with dwellings.** Their very appearance suggests and invites incendiarism on the part of malicious boys and unprincipled firemen, to have a "run" with the engine.

It may be generally assumed that frame buildings, *unpainted* and weather-beaten in appearance, are seldom desirable risks; they indicate an absence of care on the part of the owner, and too often invite incendiarism. A neat, well painted building, kept in repair by a thrifty owner, is a much safer risk than an old, dilapidated one, though the occupation and exposures may be the same in each case.

Barns standing in the outskirts of towns, and unconnected with dwellings, are very different risks from the neat, well painted structure of a thrifty owner, *on the same lot with his dwelling,* and are very much poorer risks, also, than *farm barns,* which, though sometimes unpainted, are fair risks *if insured with the dwelling.*

When reporting a risk on a barn, explain the circumstances fully in Daily Report, whether the company insures or will insure the dwelling, &c., &c.

Old, dilapidated manufactories, or other structures, in the compact parts of towns, which stand in the way of improvement, and have become "eye-sores," if they are not actually set on fire, become dangerous for the reason that, in case of accidental ignition, *no one feels interested in their preservation*, and neither firemen nor citizens will exert themselves to save them.

Avoid buildings which are shortly to be removed or pulled down, or those standing on leased ground, the lease of which is about to expire. If the terms of the lease are such that the building reverts to the owner of the ground at the expiration of the lease, such buildings are worth no more to the lessee than for *the use of them for the time the lease has to run*—say what remains, after deducting from a fair rental, taxes, cost of repairs, &c., &c.

Vacant Buildings, Unoccupied Dwellings, &c.—Unoccupied buildings, and notably vacant dwellings, have been unprofitable risks to insurance companies. They become the sleeping places of tramps and vagrants, who are careless and indifferent as to fire, sometimes maliciously setting them purposely on fire. A moral hazard attaches, also, to all unproductive property. Where there is an absence of moral hazard, and the insurance is limited to not exceeding two-thirds the value and at double the ordinary rates—or say at short rates of 1% additional to the annual rate for the term of vacancy—they may be insured by the agent. In the case of dwellings, 10 cents a month per $100 should be the minimum charge for vacancy. Some careful person should have charge of them. If located at a distance from other buildings, in isolated localities, we prefer to decline them. Be very sure that the vacancy is not a chronic case. *Special Hazards* pay same rates vacant as when running, and are poor risks unless productive. Do not *solicit* vacant or unoccupied buildings even at double rates. They have not been profitable or remunerative at any rates of premium, and we desire to confine our insurance only to such buildings *of our customers* as may be temporarily vacant for good reasons.

Where dwellings are unoccupied on account of *unhealthy locations*, they should be regarded as uninsurable.

Unless permission for vacancy is endorsed in writing on an insurance policy it is void, and in all cases the time of vacancy must be limited.

Too much caution cannot be used in accepting risks declined by other companies. There will usually be found some good reason for such declination, in ignorance of which it is not safe to insure.

Physical Hazard.—EXPOSURES.—Examine carefully all buildings exposing the risk, remembering that *where a hazard which we would not insure exposes the risk*, so that the chances are in favor of both burning together, *we would not insure either.*

A building not exposed by any other within 100 feet is usually regarded as "detached," and agents are requested to show all risks within that distance on their diagrams; but it will often be found that an objectionable special hazard, though not within 100 feet of the risk, still exposes it by reason of *intervening buildings* or *lumber piles.* Where this is the case it should be reported to the company, and agents should not content themselves with merely answering the questions, in surveys and daily reports, as to risks within 100 feet. The experience of late years shows that too much attention cannot be paid to outlying exposures, and the direction and force of the prevailing winds of a locality. Lumber yards, for instance, are bad exposures. In a high wind burning boards and shingles are carried to great distances.

Buildings with shingle roofs, barns and stacks of hay or straw near railroads, are poor risks, owing to flying locomotive sparks. The sparks of steam vessels are dangerous, also, to some risks exposed to them.

Forests and Prairies are sometimes serious exposures to buildings near them, on account of the sweeping fires to which they are liable.

Barns and haystacks exposed to prairie fires are not profitable risks. Decline applications to insure *prairie hay* in stacks. It is seldom of much value, and is generally exposed to prairie fires.

Frame rows and ranges. Take only small lines at full rates. We do not wish, as a rule, over $2,000 exposed to a fire in any one frame row. Buildings are less desirable than stocks *on the grade floor*, as the latter may be saved by removal, although the high rates required usually result in such a small proportion of insurance to value, that the entire stock must be safely removed to secure any salvage for the company. Buildings in frame rows deteriorate rapidly, and become, in time, occupied by second and third-rate tenants, and where we insure the buildings we are apt to remain after the risks become undesirable; while, on the other hand, *honest stocks generally follow trade to desirable* *locations.* The *end buildings* of frame rows are the most desirable, for obvious reasons.

Brick Buildings in frame rows, unless almost fireproof, with fire walls at least 18 inches thick, metal cornice and roof, and *no wood-work exposed,* are poor risks at the rates usually obtained for them. They are more than likely to burn with the frames, especially if the latter are more than one story high, and should not be insured at a much lower rate, whereas the most inexcusable discrimination in favor of such buildings is usually made. It may be seriously questioned whether a brick building with a shingle roof, wood cornice, or with windows in side walls unprotected by metal, is any better risk than the frames on either side. We prefer a smaller amount in the latter, where the moral hazard is the same, *at the usual difference in rates.*

Omnibus Blocks, divided only by stud and plaster partitions, seldom pay adequate rates, and should be regarded, in all cases, as one risk, no matter how many separate divisions there may be. The line for the whole block should not exceed one-half that of a first-class, single-occupancy building. Few classes of risks are more undesirable at current and obtainable rates. They are very apt to have one or more vacant rooms or stores, which are sometimes hired, for short periods, by objectionable tenants—such as itinerant vendors of patent rights for explosive kerosene oils, and new gas machines, which are on exhibition by day and night. The upper floors will be found to have tenants careless as to ashes. Kerosene lamps on brackets in hallways are very apt to be neglected, and a proper charge for the number of tenants alone, if all were safe and desirable parties, would result in a rate double that usually obtained.

The mutual exposure of buildings situated in contact but at right angles to each other, even though separated by a fire-wall extending through the roof, is sometimes very serious by reason of the *windows in the angle or corner*, and is much greater than where buildings are constructed in a continuous straight line. Such windows should be protected with metal. In many cases, buildings so constructed—as in the case of mills or other manufactories, built in the form of a hollow square —though otherwise divided and *intended to be separate risks*, become virtually one hazard, and lines and rates should be regulated accordingly.

Narrow streets and streams of water are very often erroneously regarded by inexperienced agents as cutting off all danger from exposure beyond them.

Petroleum yards, refineries, warehouses, and petroleum piers, from which petroleum is loaded on vessels or cars, are very dangerous exposures, and no ordinary exposure distance is the measure of safety. In August, 1866, a fire occured at Valentine's yard, Jersey City, caused by a careless sailor striking a match in the cabin of a schooner, laden with oil, in which, contrary to regulation, the cabin and forecastle were below deck. The cabin was filled with vapor from the oil, and the ensuing fire destroyed the warehouse, four or five vessels, and many thousand barrels of oil; *and the burning oil, floating on the water, set fire from below to a pier, which was filled with tobacco, cotton and other valuable merchandise, some* 400 *feet distant from the one first burned.*

Wooden Cornices.—Hollow, wooden cornices sometimes serve to connect an entire block of stone or brick stores, which would otherwise be separate risks, so as to make them virtually one hazard. In case of fire in one of such a row of buildings, they conceal the creeping of flame to the roof timbers of those adjoining. In this way the entire structure of a roof may become hopelessly on fire before the fact can be discovered by the firemen on the street below, the flame being out of sight and out of reach of water from the engines.

It may be questioned if massive, hollow, wooden cornices are not more objectionable than shingle roofs, since the latter do not conceal the fire which ignites them. Such faulty architecture is to be deprecated. It certainly is not ornamental, and violates the rules of good taste not less than those of safety. It may be regarded as a peculiarity of American architecture, to be corrected only by the united efforts of underwriters, builders and architects. Where new buildings are being erected in a town, the local board should protest against such serious faults of construction. It frequently happens that an owner is ignorant of the objection to them, and a friendly remonstrance on the part of an intelligent agent will effect a reform. In all cases they should be charged for, in making a rate, and *never lost sight of in estimating the hazard of an exposure, or in considering the important question of line.*

Empty boxes, barrels, old lumber and rubbish in the rear yards of buildings.—The accumulation of piles of empty boxes, rubbish, hay, straw, and other packing material, *in the rear yards of buildings*, often in contact with the buildings themselves, tends to the spread of conflagrations in cities and towns. Such collections offer ready fuel to falling sparks and burning shingles, and buildings of substantial construction, with metal roofs, which might reasonably be considered fire-proof externally, succumb to these "attacks in the rear."

At the large fire in Springfield, Mass., in May, 1875, Hurlbert's granite-fronted building, and other first-class, brick buildings, blocks away from the scene of the fire, were ignited and destroyed in this manner.

Large accumulations of empty kerosene or naphtha barrels, especially, are sometimes serious exposures, and are frequently overlooked as such by insurance agents in surveying risks.

Charge for Exposures.—So many things have to be taken into consideration in estimating the proper charge for exposures—construction of buildings, thickness of walls, wooden cornices, material of roofs, sky-lights, prevailing winds, fire departments, water supply, &c., &c. —an almost endless combination of facts and circumstances—that no specific rules can be given. *A portion of the rate of an exposing building should be added to that of the one to be insured,* according as the material of which it is constructed, its contents, and the intervening distance, increase the probabilities of the risk being burned by it. In cases of doubt, where there is no established tariff, the company may be consulted as to the rate to be charged, by forwarding a diagram of the risk and its exposures.

As a rule, a building is more seriously exposed by a brick or stone building *lower than itself* than by one that is higher, as, in the latter case, the heat of the fire passes off into the air. A very high building, however, may seriously endanger a lower one adjoining, if its walls fall outward.

Agents sometimes overlook exposures in making rates on *stone buildings with fronts of cut stone or ornamental* *carving*, which may be severely if not irreparably damaged by the heat of a fire on the opposite side of a street or at some distance from them.

Livery stables are frequently serious exposures to mercantile buildings in towns, especially if over one-story high, and if hay or straw, in any large quantity, is kept.

Buildings containing stocks of furniture, agricultural implements, wooden ware, lumber, veneers, high-wines, oils, and other combustible material, offering substantial fuel to flame should be regarded as more serious exposures than those containing less inflammable merchandise. Of the special hazards, of course, the wood-working risks are more serious, not only from the frequency of their burning, but on account of the intensity of the fire. Oil refineries, distilleries, etc., are, of course, among the worst of special hazards.

The exposure caused by frame buildings to a brick or stone building adjoining them is more serious *if they extend beyond the line of its rear wall.* It is difficult for firemen, under such circumstances, to prevent a fire in the frames from working its way through the rear windows of the brick building, *unless such windows are protected by metal.* No wood-work should be exposed on the rear walls of brick buildings in such a case.

Wholesale drug-stores are very objectionable exposures, owing to their liability to fire and the explosive character of many of the substances kept. It is questionable as to what thickness of wall is sufficient to confine a fire in such a stock.

We might mention other risks objectionable as exposures, but the agent will find them treated of specifically elsewhere, our purpose, in this connection, being to call attention only to those which are most frequently overlooked.

CONSTRUCTION OF BUILDINGS.

We shall briefly enumerate the requirements of a standard building, and afterwards proceed to point out those features, such as occupation, want of cleanliness and care, etc., which so frequently offset all advantages of substantial construction.

Standard Building:

Area.—The minimum area covered by a building should not be over 4,000 square feet—say 40x100. Where a building covers a larger area, a charge should be made. In this connection it may be well to state, that it is easier to extinguish a fire in a long, narrow building than in a square building, though the number of square feet of area covered be the same in each case.

Walls—If independent, should be of stone, brick or iron, properly bonded and solidly put together, with close joints, and, for the first two stories, *as many times four inches thick as there are to be stories in height*, no wall, however, to be less than eight inches thick. The walls may recede four inches at the beginning of every story above the second, (except the last,) and must continue through and at least three feet above the roof, and *be coped* with iron or stone. In continuous blocks of warehouses and stores, the parapet walls should extend five feet above the roofs, and should be pierced at intervals, at a height of three and a half feet above the roofs *for the use of hose* by the firemen. This enables them to work, without danger, on the roof of a building adjoining one on fire, and to protect sky-lights, etc., of the one on which they stand, which might otherwise have to be abandoned.

At the beginning of each story, ledges should be provided on which joists and timbers may rest without penetrating the wall. The walls* should be corbelled out at the eaves, at least twelve inches, or to the outer edge of all projections of cornice or roof on the front or rear of buildings, especially in the case of mansard roofs.

PARTY WALLS should be at least four inches thicker than independent walls, and there should be *at least* eight inches of solid masonry between the ends of timbers of two adjoining buildings. Timbers are improved by being protected with metal caps.

IRON FRONTS should be solidly backed or filled in with brick.

HEIGHT—not over four stories, or sixty feet.

WINDOWS.—All windows on exposed sides should be provided with iron shutters, hung with three hinges from "eyes" laid or anchored in the walls, one on each floor above the first being so arranged that it can be opened from the outside by firemen in case of fire. The frames should be of iron, and the caps and sills of iron or stone.

FLOORS.—These may be made almost fire-proof, if of double planking and deafened, *i. e.*, the space between the upper and lower planking filled in with good mortar or some other compact, non-combustible material. If mortar or plaster is used, the burrowing of rats may be prevented by mixing broken glass with it. *The flooring should be closely fitted to the walls on all sides, so as to be completely air-tight.*

In this connection it may be well to call attention to the changes of occupation to which buildings are liable, and in consequence of which they are sometimes used for other purposes than those for which they were originally constructed. Floors are liable to be over-loaded, and this over-loading, if it results in their giving way, may produce fires and losses. It not unfrequently happens, for instance, that buildings erected for dwelling-houses, and used as such for years—by reason of those changes in the occupation of streets common to cities—are afterwards converted into warehouses for the storage of heavy goods; barrels of high-wines, liquors, salt meats, and other heavy merchandise, being frequently tiered up to the ceiling. If such a floor should give way, a stove being nearly always in the room, a fire would inevitably result.

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* *i. e.*, the side walls of buildings, especially if adjoining others in rows.

The usual weight of safe loading per square foot of flooring, for which builders estimate, in dwellings, is 40 lbs.; whereas warehouses require strength to bear a safe loading of from 250 to 300 lbs. to the square foot, and manufactories from 200 to 500 lbs. The storage of grain requires a strength of 100 lbs. per square foot. Churches, theatres and ball-rooms, 90 lbs. (The New York law requires 120 lbs. for places of public assembly.)

These weights are for loading only, and do not include the weight of materials in the floors themselves.

COLUMNS OR SUPPORTS should be of locust, oak, Georgia pine, or of brick, or wrought iron. *Cast-iron is not so safe, and stone columns are dangerous.* Cast-iron gives way from so many different causes, that little reliance can be placed upon it when subjected to severe heat. The castings may have flaws in them, or they may be too weak for the weight they have to support, being sometimes loaded to very nearly their breaking point. When it is remembered that the loss of strength of cast iron in a variation of temperature from 26° to

190° is ten per cent., it must follow that if floor-beams, at the time of a fire, should happen to be loaded to within ten per cent. of their breaking weight when cold, an increase of temperature of only 170° might destroy a building, even though the fire should be extinguished.

The expansion of iron girders may thrust out the side walls of a building. Heated cast-iron is sometimes instantly fractured by having cold water thrown upon it.

Firemen are seldom willing to enter a building supported by cast-iron columns *when it is once fairly on fire*, because of the liability of iron columns to break without the warning which the cracking of timber supports affords to them when in a burning building.

Where iron columns are used, they should, in all cases, —except possibly where a wall supported by them fronts on a street—be double, with an inner and outer column, and the inner column should be of sufficient strength to support safely the weight to be imposed upon both, the outer column being of sufficient size to allow a space of at least one inch between it and the inner column, which space should be solidly filled with plaster of Paris or some other non-conducting material. To secure the maximum strength of an iron column, both bearings should be perfectly square and for the full size of the column.

The law of the State of New York requires that "all iron beams, girders, lintels or columns, before the same are used in any building, shall have the maximum weight which they will safely sustain stamped, cast or properly marked in a conspicuous place thereon by the founder or manufacturer of the same, and shall be made of the best materials and in the best manner."

In all calculations for the strength of materials to be used in any building, the proportion between the *safe weight* and the *breaking weight* should be as *one* to *three* for all beams, girders and other pieces subjected to a cross strain; and should be as *one* to *six* for all posts, columns and other vertical supports, and for all the tie-rods, tie-beams, and other pieces subjected to a tensile strain. Where the load is *constant* the factor of safety may be less than where it is *vibrating or changeable*, as in rooms for dancing, some kinds of manufactories, etc. (For the weights estimated for in different buildings, see *ante*, page 36.)

So called "fire-proof" buildings are, sometimes, by reason of defective iron columns and girders, and overloading, of all others the most dangerous. They should be intelligently constructed, with reference to well established principles of the strength and quality of materials, and not—as is too often the case where persons act as their own architects—in utter disregard of both.

CEILINGS.—Dangerous air-spaces should not be left between ceilings and floors above them.

ROOF—Should be of metal, slate, or shingles laid in mortar. A new fire-proof material has lately been invented, formed into sections, which can be fastened to beams, and on which metal or composition roofing may be laid. Slates laid with one inch of concrete between the slate and lathing make a very safe roof.

Many kinds of so called "composition" roofing material are little, if any, better than shingles.

All structures above a roof, such as domes, cupolas, spires, pinnacles, dormer windows, sky-lights, etc., etc., should be constructed of fire-proof material or covered with metal.

Mansard roofs, unless entirely of fire-proof material, especially where buildings are exposed by others in the compact parts of towns, should be prohibited by statute.

SKYLIGHTS should be of iron frames, filled in with pounded glass not less than one-half inch in thickness. No more faulty construction exists than that of whole rows of brick buildings, each with a large sky-light with wooden frame and thin glass, immediately over a well-hole extending through the floors. It is almost impossible to prevent a fire in one of such a row of buildings from extending through the rest. All the efforts of firemen cannot prevent the showers of burning material from an adjoining fire, from falling through such a sky-light, especially in the absence of parapet walls five feet high, as before described. Buildings constructed in this manner have all the qualities of a furnace, their contents furnishing the fuel.

CORNICES.—These should be of metal, stone or brick, and if of metal, they should be fastened to non-combustible hangers or backing. The gutters should also be of metal. *Wooden cornices* are always objectionable, especially if hollow, boxed cornices, which, even if the building is unexposed by others, are objectionable because they afford a harbor for rats or mice ; while in the case of a fire in an adjoining building, they serve, as before explained, to conceal the creeping of flame to the roof timbers.

SCUTTLE.—No building should be without a scuttle at least two feet by three, with a ladder or stairs to secure access to the roof. It should not be kept locked, and the wooden cover, if any, should be covered with metal.

ELEVATORS, DUMB WAITERS, HATCHWAYS, etc., should have substantial, close-fitting traps, and be closed when not in use. Elevators can easily be constructed so as to be self-closing.

The greatest safety lies in being able to confine a fire to the room or floor where it originates, and to prevent drafts or currents of air. Fires will sometimes go out of themselves if closely confined and deprived of a supply of oxygen, and for this reason even the stairways may be encased and closed with doors at each story to advantage.

STAIRWAYS.—These, as just stated, should be closed. *Circular stairways* particularly if open, are little, if any, better than open elevators or hatchways. *Stairways entirely of stone are dangerous*, as they are liable to give way when heated, upon contact with cold water. Stone stairways are especially dangerous where one end of the stone step is unsupported, as in the case of circular stairs.

Next to a stairway entirely of brick, or of brick with stone treads, and but little inferior to such a staircase for safety, is one of heavy timbers, filled in with good concrete before the tread is placed.

Iron stairways should be of *wrought* iron.

STEAM, GAS AND WATER PIPES should be carried up through recesses in the walls, and in no case through floors or hollow, plastered partitions. Steam pipes should never be in contact with wood work. For full instructions as to steam-pipes and statistics of fires caused by them, see under head of "Causes of Fires in Cotton and Woolen Mills."

COMMUNICATIONS WITH ADJOINING BUILDINGS should be protected by iron doors. These are better if double, with an air-space between the two, and with hinges anchored securely in the wall. The frame-work and sills should also be of iron. A wooden door covered with iron or an iron door covered *with wood* is safer than one entirely of iron, for the reason that, as the heat is never evenly applied over the surface, a door entirely of iron is liable to warp and let the flame through, while neither of the former will yield, the wood, though charred, serving to keep the iron in shape.

Sliding doors are preferable to those swinging on hinges. If constructed so as to *roll up an incline in opening, closing themselves by the force of gravity,* they are much safer.

Zinc is not a safe covering for the wood-work of doors and windows, as it melts easily.

IRON SHEATHING, ROOMS LINED WITH IRON, ETC.—The protection of rooms by sheathing the wood-work with iron is not so desirable as is generally supposed, and much reliance cannot be placed upon it, owing to the fact that fire nearly always succeeds in getting behind the iron, in which case the sheathing serves to prevent water from reaching it. Good mortar or non-combustible material *behind the wood-work* is preferable.

CHIMNEYS should be built in the walls or from the ground, and to the height of at least three feet above the peaks of the roofs, and coped with stone or iron, and the joints of all chimneys should be struck smooth on the inside, the fire-backs being not less than eight inches in thickness. *Chimneys resting on floors or joists settle with the buildings,* and open cracks which are dangerous from the escape of sparks, and from the burning out of the chimney. These dangers should be carefully examined for. We lose more dwellings from defective flues than from any other one cause. All *pipe-holes not in use* should have close-fitting metal stoppers. No wooden casing, furring or lath should be placed against any flue or metal pipe used to convey smoke, hot air or steam. All wooden beams should be trimmed away from flues, the trimmer beam to be twelve inches from the inside face, and the header, four inches from the *outside* face of the flue. There should be no wood-work of any kind framed into chimneys.

Carpenters, in building new houses or repairing old ones, frequently drive pieces of wood into chimneys for the purpose of fixing their work, without paying any attention to see whether such pieces run into flues or not.

The danger from flues for furnaces and close fires, whether for heating or cooking, is very great; and flues for close fires—*i. e.*, those where the whole draft must pass through the fire—should be expressly built for the purpose. The heat in the flues of a heating furnace has been found to be 300° at a distance of forty or fifty feet above the fire. In open grates or fire-places enough cold air ascends with the smoke to cool the flue.

Chimney shafts of all furnaces, bakers' ovens, large cooking ranges, and laundry stoves, therefore, need careful examination. They should be at least eight inches thick—unless there is a fire-brick pipe built inside, with two inches of air-space all around it, then the brick-work may be four inches—and the flues should have an inside area of at least sixty-four square inches. The smoke flues of smelting furnaces, or of any furnace which heats a flue to a high temperature, should be built with double walls, with an air-space between them.

HEARTHS should not be laid on timber, but in all cases upon brick arches well grouted, or upon bars of iron supporting a bed of brick-work or concrete not less than three inches thick.

STEAM BOILERS and boiler chimneys—for full instructions, see under head of "Special Hazards," page 182. A chimney not built expressly for a steam boiler cannot be safely adapted for the purpose.

Brick Hot-Air Furnaces.—The following are the requirements of the building law of the State of New York, and of the New York Board of Underwriters as to furnaces:

"The sides of all brick hot-air furnaces shall be kept four inches from any beams, girders or wooden partitions of any kind; and the top of the furnace must be kept at least four inches below the floor beams or ceilings. When the cold air enters at the top of the furnace and passes over the top of the hot-air chamber, the outside cover shall be made of brick, iron or tin plate, supported by iron bars, and so constructed as to be perfectly tight. Said cover shall be in addition to, and not less that six inches from, the cover of the hot-air chamber; but when the cold air enters at the bottom of the furnace, the outside cover shall be made of bricks with a layer of sand on top of the same at least two inches in thickness. Said cover to be in addition to, and not less than four inches from, the cover of the hot-air chamber, which shall be either a brick arch or two courses of brick supported by iron bars. The walls of the furnace shall be built hollow in the following manner: one inner and one outer wall, each four inches in thickness, with an air space of four inches between them. When a register is located over a brick furnace supported by a brick shaft built up from the hot-air chamber, the brick-work of said shaft shall be at least eight inches in thickness, unless there is a metal pipe built inside of the same, then the thickness of the brick-work shall not be less than four inches, and the floor beams shall be trimmed away four inches from the outside faces of said shaft. All cold-air boxes shall be made of iron or brick, a distance of at least three feet from the furnace."

"**Portable Hot-Air Furnaces.**—All portable hot-air furnaces shall be kept at least two feet from any wooden or combustible partitions or ceilings, whether the same shall be plastered or not, unless the partitions and ceilings are properly protected by a metal shield; then the distance shall not be less than one foot.

Wooden floors under any portable furnace shall be protected by a suitable stone, or a course of bricks well laid in mortar. Said stone or bricks shall extend at least two feet beyond the furnace in front of the ash pan."

Hot-Air Pipes.—Tin or other metal flues, pipes or register boxes used to convey heated air, should be encased with brick or stone at least four inches in thickness, or built in a wall of brick or stone; except horizontal pipes and hot-air pipes in stud partitions, which should be double—that is, two pipes one inside the other at least one-half inch apart, and with a space of three inches between the pipe and stud on each side; the inside faces of said stud should be well lined with tin plate and the outside faces covered with iron lath or slate; but no hot-air pipe should be allowed in any stud partition unless said partition, or a plumb line let fall from the same, is at least eight feet distant in a horizontal direction from the furnace.

Horizontal hot-air pipes should be kept six inches below the floor beams or ceiling; if the floor beams or ceiling are protected by a metal shield the distance may be three inches. In all cases, where hot-air pipes pass through a wood or stud partition they should be guarded by either a double collar of metal with two inches air space and holes for ventilation, or surrounded by brickwork at least four inches in thickness. No hot-air flue or pipes should be allowed between any combustible floor and ceiling.

Where hot-air pipes are carried up through closets they are frequently unsafe; in some cases shelving is framed closely around them, and the contents of the closet are often in actual contact with them. Such faulty construction, even in first-class dwellings, is far from uncommon, and should be examined for.

Hot-Air Registers.—All hot-air registers placed in any woodwork or combustible floors should have soap-stone borders firmly set in plaster of Paris or gauged mortar. All register boxes should be made of tin-plate with a flange on the top to fit the groove in the soap-stone, the register to rest upon the same; there should be an open space of two inches on all sides of the register box extending from the under side of the soap-stone and through the ceiling below; the said opening on all sides of the register box should be fitted with a tight tin casing, the upper end of which should be turned under the soap-stone and the lower end at the ceiling left open. When a register box is placed in the floor over a furnace, the open space on all sides of the register box should not be less than three inches. When only one register is connected with a furnace it should have no valves. *The principal register of a furnace must always be fastened open.*

SMOKE-PIPES.—No smoke-pipe for a furnace should pass, unprotected, through the floors of any building. Where entering a flue, they should be at least twelve inches from floors, ceilings or partitions, unless a metal shield is provided, in which case six inches space is sufficient. Where smoke-pipes pass through stud or wooden partitions they should be guarded by either a double collar of metal with three inches air space and holes for ventilation, or by a soap-stone ring not less than three inches in thickness and extending through the partition, or by an earthen ring two inches from the pipe. In all cases where laundry stoves, hot water, steam, hot air, or other furnaces are used, the smoke pipe must be kept *eighteen inches* from the floor beams or ceilings, unless the same is properly protected by a metal shield, in which case *nine inches* space is sufficient; and in all cases where the pipe passes through a wood or stud partition there must be either eight inches of brick-work around it or a double collar of metal with at least *six inches* air space and holes for ventilation.

It should be remembered that tin is a good conductor of heat when in contact; and where a single sheet is the only separating substance between the heat—whether that of steam-pipes or fire—and wood-work, many are deceived as to the danger, on account of the use so commonly made of its *reflecting qualities.* Greater safety is secured where it is used as a shield, if an air space is maintained *on both sides of it*, as, when nailed to wood-work and too near the fire, it may serve only to conceal charring without preventing it.

LIGHTNING RODS.—It is a serious question for the underwriter whether, in view of the manner in which rods are frequently put up—*and neglected by owners after they are put up*—they are desirable or not. When not of sufficient size, or when not properly connected, they may be dangerous. There should be numerous points above a roof. It is claimed that a rod protects no greater surface than is measured by four times the length of that portion above the roof in each direction ; thus, a point three feet above the roof would protect twelve feet each way.

The agent should see that all the connections of lightning rods are perfect.

BUILDERS' RISKS.

Buildings in process of construction are not good risks at current and obtainable rates. They are to be sought, however, if the final occupation of the buildings is to be such as to make them desirable risks when finished. It is, therefore, advisable to secure the risks of enterprising builders, but to endeavor to have policies written for a year, since the insurance of such buildings, for the term of the builder's risk only, would be a very unprofitable undertaking.

The agent should examine the building frequently to see that none of the rules of safe architecture are violated. By referring to the requirements of a standard building in the preceding pages, and to the directions for the building of chimneys, construction of hearths,

&c., &c., he may be able to make valuable suggestions from time to time. *Much of the unsafe building of the present day is due to ignorance of the principles of safety on the part of builders, and to negligence on the part of underwriters.* For instance, if the owner of a building in process of construction were informed that a wooden mansard would not only endanger his building, *but cost him* $5.00 *each year for every* $1,000 *of insurance*, he would probably be induced to correct such a serious fault in his plans.

Many fires are caused in new buildings by the carelessness of workmen in the use of fire for heating soldering irons, warming their dinners, heating glue, carelessness in the storage of unslaked lime, &c., &c. Plumbers and gas-fitters are culpably careless, in many cases, especially in the use of lights near leaking gas mains or meters, and, unfortunately, owners seldom think it necessary to caution or to superintend them. Roofers are generally careless as to fire-pots, sometimes actually leaving fires on the roof while at their dinners, or while occupied in other parts of the building. Within a few weeks of this writing, a large, new building at Cedar Rapids, Iowa, was burned by a fire left on the roof by tin-smiths. In another case, an inspector found a brazier of burning coals left by workmen, unattended, in the steeple of a cathedral. The partial destruction of an English cathedral, in 1875, was caused by workmen through carelessness with fire on the roof.

SHAVINGS should be removed daily and not allowed to accumulate, and the building should be secured at night that mischievous boys and malicious persons may not gain access to it. Where the building is a valuable one, a watchman should be employed by the builder. Many fires in new buildings are due to negligence of painters as to oily rags and overalls. A fire in a new dwelling-house in Boston was discovered and extinguished in time to find that it was caused by the spontaneous combustion of a pair of workman's oily over-alls which had become covered up in the cellar. Our records would furnish a number of other kindred cases.

The increased use of hard woods as a finish for wainscoting of stairways, hallways, vestibules, offices, and other parts of a building, and the habit of re-oiling them, from time to time, is productive of fires, owing to negligence in properly disposing of the oily rags used.

The building should be insured, as before stated, *for a year*, at the regular rate for its class according to the tariff, and the charge for the builder's risk added—the time of it being clearly defined in the policy. The charge should be not less than short rates of fifty cents —*i. e.*, ten cents for one month, fifteen cents for two months, &c.—added to the annual rate of the building.

Where builders' risks are desired only for the term of them, the following rates may be charged :

Twenty	cents	per	$100	for	15	days.
Thirty	"	"	"	"	1	month.
Forty-five	"	"	"	"	2	"
Sixty	"	"	"	"	3	"

Fifteen days builder's risk may be allowed during any one year, without charge, for ordinary repairs to a building insured.

For further information as to Builders' Risks, see *ante*, page 16.

When inspecting a building, proceed carefully and thoroughly from cellar to garret—*the two extremes of danger*, because often neglected—leaving no portion unexamined.

That portion of any risk which is neglected by inspectors is more than likely to be neglected by owners, and, therefore, more dangerous. For an example, showing the necessity of such examination, see under head of "Spontaneous Combustion," page 72. Notice carefully the following features of the risk :

Stoves should be free from cracks, and floors under them should be protected by zinc. (Brick platforms are not so safe.) They should not be nearer to unprotected wood-work than two feet, and have been known to set fire to plastered partitions at a distance of eighteen inches. The plastering of walls near stoves should be unbroken and lath-work unexposed to escaping sparks. Wood should not be piled under or near stoves.

All wood-work near stoves should be protected by bright tin or zinc, which *reflects heat.* A dull, rough surface sheet-iron is not so safe ; it is a good conductor and *absorbs heat.*

In manufacturing establishments—and especially wood-working risks—stoves are often carelessly managed, wood being sometimes placed against them to dry. In such risks there should be iron frames or screens around the stove and pipe. It should always be the duty of some one person to take care of them and see that fires are out at night.

Stove-pipes should not enter chimneys at a point out of sight or in unused rooms where parted joints may emit sparks, and where the coating of dust and inflammable substances, which always collect upon the upper surfaces of pipes running horizontally, is not likely to be seen. Agents should examine the upper surfaces of such pipes, especially in risks like cotton mills, bagging factories, and others where fibrous collections are incidents of the risk. Long pipes should be riveted at joints and supported at frequent intervals by wires. They should always, as before explained, be protected by earthen or double metal collars where they pass through partitions or floors. *Stove-pipes should never pass out of a window, through the roof, or through the side of a building. Where they do, the building and contents should be considered as uninsurable.* Nor should stove-pipes enter a chimney vertically at the bottom of a flue starting from a ceiling above, as there is danger of fire from burning soot falling out of the flue through the space around the pipe. Where wood is burned for fuel stove-pipes should be cleaned as often as once in three months.

Lighting.—*Movable gas or lamp brackets* should be secured by stops to *prevent their being swung under or against wood-work.* They should not be nearer to a ceiling above them than thirty-six inches, and should be provided with *hanging metal shades.* Metal nailed to wood-work is objectionable if the flame is within twelve inches of it.

Lights in show-windows—a frequent cause of fires—should be provided with glass shades and wire netting to prevent contact with ribbons, laces, &c., &c., which may be blown into the jet by a passing draught, as when a door is opened. *It is safer to have the lights arranged above the goods with reflectors.*

Gas lights near ceilings, with flues to carry off the hot-air, "sunlights," &c., are sometimes very dangerous. Such lights are frequently used in churches and other public buildings, and where there are many jets and the chandelier or "reflector" is near the ceiling, the heat generated is sometimes sufficient to ignite wood. The air-flues should be constructed in the same manner as those for hot-air furnaces—of tin, and with an air space of least two inches between them and any woodwork; if double they are safer.

Kerosene Lamps.—Only a safe article of oil not less than the U. S. standard of 110° should be used, and lamps should be filled and trimmed by day-light only. (For further information as to kerosene oil and its dangers, and the best methods of testing it, see page 73.)

Ashes must not be kept in wooden receptacles, and if carried out and deposited in wooden barrels, *they should not be allowed to stand against the sides of frame buildings.* Ashes often take fire and burn over again long after they are supposed to be cold.

Cleanliness—a very important feature. Observe whether attention is paid to keeping the premises neat and clean. All rubbish is objectionable, and the sweepings of floors, especially those of drug-stores, grocery stores, &c., where sawdust is used, are dangerous if left in heaps or boxes in the building. Sawdust saturated with oil will burn spontaneously in a very few hours. So many fires occur from spontaneous combustion, that all dust-boxes or other receptacles for rubbish should be kept outside of buildings and never in them unless regularly emptied each day before night. A good inspector will examine thoroughly (especially in workshops and manufactories) to see that rubbish or oily waste is not left to accumulate in closets or the drawers of work-benches—a very prevalent fault. (For further particulars as to spontaneous combustion, see page 58.)

CAUSES OF FIRES.

Fires from Carelessness.—Fires resulting from carelessness form such an alarming proportion of those from all causes as to call for unusual care on the part of insurance agents and inspectors, in pointing out and explaining its dangers.

Out of the total number (1,396) of fires in the City of New York for a single year, *four hundred and thirty-nine* (439) *were the result of carelessness with matches;* and as of these only forty-two (42) were by children, it follows that those of mature age (if not of mature judgment) are culpably and generally negligent.

Gaslight in show-windows caused.........	75
Leakage of gas-pipes and metres (probably from carelessness in approaching them with lights).........................	39
The boiling over of grease, pitch, tar, oil, &c.	19
Hot ashes and coals......................	17
Kerosene oil (upsetting of lamps, for kindling fires, &c.)........................	112
Malicious mischief.......................	18
Spontaneous combustion..................	39
Accidental specific.......................	77

Making a total of eight hundred and thirty-five (835) fires out of 1,396—considerably more than one-half—*nearly sixty per cent. of all the fires of one year due to carelessness!*

These astounding figures, making due allowance for those of the number resulting from intentional or incendiary causes, should need no comment to enforce their lesson; and the time devoted by an insurance agent to instructing owners of property as to the necessity for carefulness, and of enforcing its observance upon servants and employees, is well spent.

Matches should be kept in metal or earthen safes. Earthen jars with covers are admirable receptacles, and are easily procured. No more dangerous practice exists than that of keeping matches (either loose or in paper boxes), *in drawers, the sliding motion of which,* as in opening or shutting, frequently ignites them. Fires may be caused, in this manner, by the closing of desks in offices, and not break out until after all have left and the rooms are closed for the night.

The use of matches which will not ignite unless brought in contact with a specially prepared surface, should be encouraged as greatly tending to safety.

Many fires which are caused by matches, but not known to be such, are due to negligence in not keeping them beyond the reach of *rats and mice,* which have been known to carry them to great distances through floors and hollow partitions. A rat's nest was recently found with a friction match which had been used by the animal in its construction. As rats and mice frequently build their nests near steam pipes and the hot-air flues of furnaces, on account of the warmth they afford, matches may thus be brought into actual contact with sufficient heat to ignite them. It may be suggested, in this connection, that other combustibles, such as fatty pieces of meat, tallow, oily cotton or woolen waste, &c., are often carried in the same manner to the same dangerous places. It has been claimed that rats will gnaw the ends of ordinary lucifer matches to obtain the phosphorous used in manufacturing them.

The use of lighted paper to ignite gas or to make a hasty search for some missing article, before closing a building for the night, is *very dangerous.* Persons are very apt to throw it carelessly on the floor, imagining they have extinguished it by a pressure of the foot, not thinking that the draught caused by closing the door after them may re-kindle it and produce a fire.

Some years ago, a fire resulting in a loss of over half a million dollars was caused by one of the proprietors of a warehouse lighting gas with a piece of paper, which he threw aside, and which set fire to the premises, *although it was a strict rule of the warehouse that only tapers should be used for the purpose.*

Many fires take place because some thoughtless persons cannot deny themselves the pleasure of reading in bed with a candle or gas light beside them.

Many are caused by approaching with lighted candles too near bed or window curtains, (which, from the way they are hung, are easily set on fire,) and by looking under beds with lighted candles, matches, or bits of lighted paper.

Screens full of clothes placed near stoves to dry are often too near and in such positions as by a slight movement of the air or draught from an open window or door, to precipitate screen and all on the fire, and even to ignite from the heat without such aid. *Clothes which have been freshly cleaned with benzine or alcohol should never be brought near a fire,* on account of the inflammable vapors generated. A very common and dangerous practice of pulling the contents of a fire-place or stove out upon the hearth at night, instead of arranging them in the grate, and the piling of kindling wood in or near stoves at night, to dry for the morning fire, are productive of many fires.

Working over hours produces fires, through the sleepy indifference of tired workmen. Fires have been discovered by persons outside of a building burning briskly in the upper stories, while the workmen below knew nothing of it.

The negligence of tradesmen as to their empty boxes and straw or other packing material, in the cellars of stores, is so general and reprehensible as to call for special notice. It is not uncommon to see a pile of empty boxes intermingled with straw, waste paper, and other rubbish, *directly under an open iron grating in the sidewalk*, where the falling cigar or match of a malicious or careless wayfarer may kindle a conflagration.

If expressly laid for kindling, the usual arrangement of such piles of rubbish could not be better.

The accumulation of piles of empty boxes, rubbish, hay, straw, and other packing material, also, *in the rear yards of buildings*, is a fault which should not be overlooked by agents (see *ante*, p. 31).

Where windows are below the level of sidewalks, areas being constructed for the admission of light, the owners of buildings are seldom careful to prevent the accumulation, in such places, of dried leaves, straw, or other combustible material, where a falling cigar or spark from a neighboring fire might ignite them. Agents should examine carefully for such negligence.

In drug, grocery and oil stores especially, the cellars are the source of many fires. *All of the oils, alcohol, turpentine, &c., are usually kept in this part of the building, where most of the packing and unpacking is done*, the straw and shavings lying near the cans. The clerks entrusted with this part of the business are usually careless boys. A single match thrown heedlessly down, or an old rag used to remove linseed oil from the hands and thoughtlessly cast aside, may kindle a fire resulting in a destruction of property. Fires, under such circumstances, are peculiarly rapid. At the burning of a large wholesale drug store in Philadelphia, a few years ago, (the fire originating in the very manner described,) so rapid was the flashing of the fire throughout the building by means of open elevator-shafts and stairways, that not even the books of account were saved, and clerks and proprietors were able only to save themselves by precipitate flight.

The use of *wooden fire-boards* frequently causes fires, especially where stove-pipes pass through them without tin covers to protect the wood. Burning soot is liable to ignite them.

The emptying of ashes into dust-bins or boxes is very common and very dangerous, and causes many fires One such cost $200,000.

The swinging of movable lights, gas-brackets, &c., unprovided with "stops" to prevent their swinging too far under or against wood-work, as before mentioned, is a fruitful source of fires.

The careless setting away in closets, of tinsmiths' fire-pots, charcoal furnaces, &c., before cool, is dangerous.

The use of covered lights, so necessary in those buildings where combustible material is handled in large quantities, such as cotton mills, batting or wadding mills, flax or jute mills, planing mills, &c., *may actually be productive of the danger they are intended to prevent*, if the utmost care is not taken to keep the coverings or shades from becoming mere collectors of inflammable material in much closer contact with the flame than it would be without them.

Almost every newspaper records loss of life and property from the filling and trimming of kerosene lamps at night or *near fires*, and by *the use of kerosene to kindle fires.* The most energetic language would not enforce such teaching.

Carelessness in the storage of unslaked lime is a frequent cause of fires. It is often carelessly stored where exposed to high tides, freshets or rain-storms, near an open or broken window, or under a leaky roof. Where lime dust is swept up after being shaken over a floor, as by the rolling of barrels of lime, care should be taken, *especially where the floor is sprinkled with water before sweeping*, to carry the sweepings out of the buildings. The mill of the Collins Paper Company, at Wilbraham, Mass., came very near being set on fire in this way, such sweepings having been carelessly emptied with other rubbish into a box or basket, in the basement, which was discovered on fire a few minutes afterwards.

In brief, it is necessary to examine with the greatest care for all evidences of carelessness, *the most frequent source of fires.* It is sometimes so apparent in every part of a risk as to preclude all idea of a possibility of correcting it, and the only safe rule for such chronic cases is to decline the risk altogether. The Company must rely implicitly upon its agents as to this most important feature of all risks—*a feature which does not show on diagrams or reports*, and which can only be guarded against by the thorough inspection of a careful and conscientious underwriter on the ground.

As a rule, dangerous combustible substances are not so prolific of fires in those risks of which they are the natural incidents, and where their dangers are thoroughly understood, as in those where they are mere accidents, and *where the parties using them are ignorant of their dangerous properties.*

Lime, for instance, which is safely handled by the lime-burner or dealer, is dangerous in paper mills and grocery stores ; oily waste, which every cotton manufacturer knows will burn spontaneously, is often the cause of fires in machine shops and other mechanical risks, where it is used to wipe off machinery and is afterwards carelessly thrown aside in some closet or rubbish box to endanger the property ; benzine, naphtha, linseed oil, phosphorus, and the numerous articles which every chemist understands thoroughly, do not often set drug stores on fire, but become prolific of losses when in the hands of those who are unfamiliar with their dangerous properties, and a careful agent will find it worth his while to bear these facts in mind, taking time, in all cases, to thoroughly and intelligently explain the dangers of such substances to those using them.

It is not safe to infer that the risks of those who have never had a fire do not need to be carefully examined. Indeed, *long immunity from fire seems to have a natural tendency to make persons careless.*

SPONTANEOUS COMBUSTION OR IGNITION.

Spontaneous combustion probably causes more fires than are attributed to it, from the fact that, in order to determine whether a fire originates in this manner or not, it must be detected at its very commencement, and before the flames have destroyed the evidences of its cause. Hence it must not be supposed that because "spontaneous combustion," as a cause of fires, never figures largely in any statistics of them, it is, any the less, a danger to be carefully guarded against. It would, perhaps, be safer to attribute to this agency many conflagrations which are supposed to be caused by "incendiaries" and "defective flues," and not a small proportion of those from "unknown causes."

For many years a fire originating from spontaneous combustion was regarded as a phenomenon; but, owing to the investigations and explanations of scientific men, and to the efforts of underwriters in collecting and publishing the statistics of fires, with a view to lessening their losses, the ignition of many substances without the application of fire-heat or flame, by the chemical action merely of the materials themselves, has come to be regarded as an accepted fact, and few persons are so ignorant as to doubt it.

Spontaneous ignition is generally due to the absorption of oxygen from the atmosphere by various substances. Heat results, also, from almost every operation of force;* the friction of machinery, the turning of iron in a lathe, the cutting of threads on a bolt, the driving of a nail into wood and especially into hardwood, the electricity of a belt, and a hundred or more processes familiar to the most ignorant mechanic. It is principally of the slow and insidious self-ignition of inert substances, not suspected by those whose property is endangered, that we propose, in this connection, to treat. The fire which every miller knows will result if the stones of a flour mill are permitted to run in contact, when the feed is shut off by some accident, is not more certain than that which will ensue from the oily waste which he uses to wipe off machinery and afterwards throws aside in some corner to lie neglected and forgotten until it bursts into flame.

Heat results from chemical action, as surely, though more slowly, than from the application of flame. Of those substances which absorb oxygen most rapidly, probably the siccative or drying vegetable oils are the most dangerous ; such as linseed, cotton-seed, palm oil, almond, rape-seed, &c. Prof. Van der Weyde of Philadelphia, in an article on spontaneous combustion, says :

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* See foot note, page 178.

> "All vegetable or animal oils are compounds of Glycerine with fatty acids. When they become old a chemical decomposition takes place and the oil becomes rancid. When this rancid oil is absorbed by rags lying in heaps, it will act on the fibres, produce heat and finally spontaneous combustion."
>
> "Petroleum is of another nature ; it is not composed of fatty acids, consequently it cannot become rancid. I have tried to produce spontaneous combustion with petroleum by saturating rags with it and placing a thermometer in the heap, but have failed to produce the least rise in temperature." *Petroleum is dangerous chiefly on account of its vaporizing qualities and inflammability at low temperatures.*

It is not necessary, however, for many oils, especially the vegetable oils, to become rancid in order to produce spontaneous combustion, although old and rancid oil ignites more quickly than newly made oil. When spread out so as to expose a greater surface to the air, as when united with some vegetable fibre, such as cotton, hemp, flax, tow, oakum, shavings, charcoal, lampblack, saw-dust, or other porous or fibrous, carbonaceous substances, the oxygen is absorbed in such quantities as rapidly to raise the temperature to the point of ignition. Sawdust and oil will ignite in sixteen hours. Cotton waste, such as is used by mechanics to wipe off machinery, when greasy, in a very few hours. Cotton saturated with linseed oil will burn in from two to ten hours, according to circumstances ; with rape and olive oils, in from five to six hours. Ignition takes place more rapidly with silk waste than with cotton.

Such substances take fire more readily when covered up, so as to confine the heat generated, or when subjected to any artificial heat, as of steam-pipes or hot-air flues—to which, as elsewhere explained, they may be conveyed by rats—or that of the sun. Oily rags are very liable to burn spontaneously and are frequently the cause of fires in junk shops and paper mills, *and it should be remembered that some oily rags are to be found in almost every collection.* Canvas painted with oil paint and rolled up is very liable to burn. Wet cotton, damp oat-meal or bran, and most vegetable substances, when packed together in a confined place, without being sufficiently dry, undergo fermentation or heating, and are liable to take fire. Spent tan-bark is liable to ignite spontaneously when stacked up in heaps.* "The moistening of such fibrous substances as cotton, hair or wool, is always attended with a slight but constant disengagement of heat." Wet iron filings generate heat and so also does rusting iron. Very fine fragments of iron and steel by their rapid oxidation become red hot—the theory of striking fire with a flint and steel—and it is now claimed, with much show of reason, by an English scientist, that some of the fires caused by steam-pipes may originate in this manner from the rust of the iron. He says:

> "When oxide of iron is placed in contact with timber, excluded from the atmosphere, and aided by a slightly increased temperature, the oxide parts with its oxygen, and is converted into very finely divided particles of metallic iron, having such an affinity for oxygen that, when afterwards exposed to the action of the atmosphere from any cause, oxygen is absorbed so rapidly that these particles become suddenly red hot, and, if in sufficient quantity, will produce a temperature far beyond the ignitible point of

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*It is used in White Lead Works for this very reason, to generate carbon dioxide by its fermentation in the corroding beds.

dry timber. Wherever iron pipes are employed for the circulation of any heated medium (whether hot water, hot air or steam), and wherever these pipes are allowed to become rusty, and are also in close contact with timber, it is only necessary to suppose that under these circumstances the finely divided particles of metallic iron become exposed to the action of the atmosphere (and this may occur from the mere expansion or contraction of the pipes), in order to account for many of the fires which periodically take place at the commencement of the winter season."

The iron scraps or shavings, lathe chips, etc., to be found in small heaps on the floors of machine-shops, and which are always more or less oily, are particularly liable to heat if they become rusty; and fires in such heaps, in the yards of iron-works, where exposed to alternate rain and sunshine—*particularly where saw-dust is used, as in the case of nut and bolt works*—are far from uncommon.

In one instance, where a large machine-shop was flooded by a sudden freshet, which, of course, thoroughly wetted such heaps upon the floor, they began to heat from the rusting, immediately after the water had subsided.

The *spontaneous ignition of coal mines* is supposed to be due to the chemical action of water and iron pyrites, the decomposition of sulphurets of iron in the slates, which rapidly absorb oxygen. The fire in the Hickory Shaft, an extensive colliery near Pottsville, Pa., in 1870, it is claimed, originated in this manner.

"The yellowish matter commonly called copperas stone, brazil, rust balls or marcasite, often adhering to or mixed with the substance of pit coal, consists of sulphur and iron, and is a species of pyrites. These are picked out and laid aside, and such heaps have been known to take fire, as at Whitehaven and near Halifax, and at Puddle Dock, London. Water having obtained access to it, it burned like red hot coals."—*Bishop Watson's Chemical Essays, vol.* 1, *p.* 194.

An experiment showing the manner in which subterranean fires possibly sometimes originate is also mentioned :

> "Twenty five pounds of powdered sulphur were mixed with an equal weight of iron filings. After being kneaded together with a little water to the consistence of paste it was placed in an iron pot, covered with a cloth, and the whole buried under ground about one foot deep. In eight or nine hours the earth swelled, grew warm and cracked ; hot sulphurous vapors were perceived ; a flame which dilated the cracks was observed ; in short, a subterraneous fire, producing a volcano in miniature, was spontaneously lighted up from the reciprocal actions of sulphur, iron and water." —*Ibid., p.* 185.

Bituminous Coal in large heaps, owing to the decomposition of sulphuret of iron which it contains in large quantities, has caused many fires, the most serious of which, probably, was that at Copenhagen, about the year 1804, when 1400 buildings were destroyed. Numerous fires have occurred at the different U. S. Navy Yards, where large quantities of the coal are kept—notably at Brooklyn, Boston, Portsmouth, and in a heap of coal under the trestle of the Louisville and Nashville R. R., at Nashville, Tenn.

In December, 1875, a fire started in a large heap of 1300 tons of bituminous coal stored in the basement of a store-house connected with the Burlington Woolen Mill at Winooski, Vermont, no doubt caused by the decomposition of sulphurets in the coal. A singular fatality has attended many of the ships in the carrying trade of soft coal, unexplained except upon the hypothesis of spontaneous combustion of the coal.

All bituminous coal should be kept in small heaps, out of doors, protected by sheds from the rain, but where frequent currents of air may keep it cool.

Everyone is familiar with the spontaneous ignition c *unslaked lime* when dampened in any way, and yet it i frequently stored, as elsewhere mentioned, in a careles manner, where exposed to rain by an open or broke window or a leaky roof, or in warehouses where freshet may reach it.

The ordinary *oiled clothing* to be found in ship chandler stores, and in clothing stores near the water front of cities is dangerous when in piles. It should alway be hung up and exposed to free currents of air, by whic the heat evolved is conducted away. Decline stocks o goods where it forms a large percentage of the stoc and *where it is kept in piles on shelves or counters or i drawers.*

Charcoal will burn when pulverized or finely divided in heaps. Twenty or thirty hundred weight of charcoa in a state of minute division is almost certain to bur spontaneously. In an experiment which was made i France, under government direction, it was found tha the inflammation occurs towards the centre of th mass, in such cases, at about five or six inches belov the surface. The temperature is constantly higher i this place than in any other. In another instance, wher small charcoal was thrown into a heap ten feet squar and four feet deep, containing two or three tons of charcoal, the temperature in three days had increased to 90° though at first only 57° (that of the air at the time.) O the sixth day it was 150°, and on the seventh day *combustion had occurred in several places.* The charcoal ha been made ten or twelve days before the experiment too place, had been freely exposed to the air, and was not in any sense, what is known as "freshly burned" charcoal. When *finely powdered*, charcoal is more dangerous than when in sticks. Sixty pounds of powdered charcoal is sometimes a large enough quantity to ignite spontaneously. Lumps of charcoal, if moist and subjected to a slight drying heat, will ignite (see the interesting experiment of Professor Jackson, under head of steam-pipe fires, page 253).

Dr. Kane, in the narrative of his Arctic explorations, mentions a fire originating unmistakably in the "remains of a barrel of charcoal which had been left in the carpenter's room of the ship, ten feet from the stoves and with a bulkhead separating it from them."

Phosphorus—which should always be kept under water, and which, when it becomes uncovered, by evaporation or leakage of the water, absorbs oxygen so rapidly at a temperature below 70°, as to take fire readily, especially when in a powdered state—is very dangerous. Sufficient powdered phosphorus is sometimes to be found on the head of matches to ignite in this way. Some fires are possibly due to the ignition of matches by the heat of the sun, which, in a window and in summer, is frequently as high as 140°—more than enough to ignite phosphorus. The ordinary lucifer match composition is luminous on dark, warm nights, showing that oxidation is going on and a process of heating; hence large quantities of matches should not be kept in stores, especially where any heat—whether of stoves, steam-pipes, or of the sun—can reach them.

Chlorine, one of the most energetic of elementary substances, largely used in bleaching, in the form of chloride of lime, chlorate of potash, chloride of magnesia, &c., has a powerful affinity for hydrogen, seizing it in many of its liquid and solid combinations, as in volatile oils, which it inflames, and in cotton and flax. It spontaneously burns many substances. Some of the metals, when finely divided, take fire spontaneously in chlorine, such as brass-leaf or powdered antimony.

Lampblack is claimed to be dangerous, and there can be no doubt of its liability to ignite spontaneously if mixed with oils—especially linseed—which contain a large proportion of hydrogen. It is claimed to be the unsuspected cause, sometimes, of fires in shoe manufactories, in which risks it is urged by some that not over one day's supply should be permitted. As lampblack is almost always to be found near oils, as in paint shops, &c., care should be taken that it does not cause fires. Its use with putty, as in the case of furniture factories, or other risks, may supply the necessary material for combustion.

Tracing paper, made transparent with oil, in process of manufacture, if the sheets are not thoroughly dry and cool before piling, will take fire within an hour, on account of the linseed oil used.

Roasted coffee sometimes takes fire spontaneously. Its latent heat is greatly increased by the process of roasting.

It is well known that hay, when stored away too green or wet, is very liable to set barns on fire by the heat generated in fermentation. It is claimed that salt sprinkled in the mow is a preventive of heating, and that if the mow is pierced with holes to permit the escape of the gases and heat generated, no combustion can take place.

Tarred felt and moist hemp have been known to take fire spontaneously.

"Charged silks," viz., silks which have been treated with oil to increase their weight, and certain shades of dyed silks, are so liable to spontaneous combustion that, in 1872, their transportation was prohibited on German railways. A peculiar kind of nut oil was used.

Goods and yarns dyed *black*, possibly from some chemical used in the dye, especially if packed solidly together before the heat from the drying process at the mills has escaped from the cloth or yarn, are very liable to burn spontaneously.* No less than six fires occurred in 1873, in mills, from spontaneous combustion in black goods. One at the Norwich Bleachery, several at the Pacific Mills, one at the Silver Spring Dye Works, and one at the Danvers, Conn., Bleachery.. In 1875 a fire occurred at the Washington Mills, Lawrence, Mass., in a roll of alpaca goods, dried on a drying machine the day previous; and, in the same year, at the Renfrew Manufacturing Company's Mill, Adams, Mass., in *Black Yarns;* and at the Lonsdale Bleachery, Lonsdale, R. I., in a pile of colored goods in the dye house. (See, also, page 256, "Causes of Fires in Cotton and Woolen Mills.")

The burning of several Russian ships in the harbor of Cronstadt was caused by the spontaneous ignition of fir-wood soot and rape oil varnish, wrapped in a bass mat and lying on the floor of the cabin, preparatory to painting a ship with it.—*Papworth's "Notes on Spontaneous Combustion."*

A vessel loaded with Guano which became wet with salt water took fire instantly.

It is claimed that buildings have been set on fire by spontaneous ignition of the guano of pigeons or other birds, and certainly some fires attributed to this cause seem to be more easily explainable on this hypothesis than on any other.

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* Probably due, also, to the fact that this color admits of greater "loading," the introduction of material to give weight to the goods, which would be apparent in the lighter colors.

Fires have been known to occur from the heat of the sun concentrated upon light combustible materials, such as shavings, oily cotton, or saw-dust, through imperfect panes of window glass, which serve the purpose of a "burning lens." When wood-work is deeply smeared with a coating of linseed oil, as is frequently the case in paint shops, carriage shops and other risks using it, it would not seem a difficult matter for the heat of the sun to ignite it.

Sun-light passing through a spheroidal glass vessel of water has been known to produce the same result.

A fire was caused in this manner in the laboratory of Dr. H. C. Bolton, of Columbia College, New York City. Upon entering the room at 9 A. M., he found a wooden table on fire, ignition having been occasioned by the rays of the sun passing through a spherical glass flask containing water.

Vessels at sea have been set on fire by means of the "bull's eye" glasses used to admit light between decks. Their use had to be discontinued and flat glass substituted. Captain Scoresby and Dr. Kane, it is said, succeeded in kindling fires with lenses made by them *of ice*, which very naturally "astonished the natives."

Almost every boy's book of "games" contains recipes for chemical combinations which will ignite without artificial heat, and it seems strange that owners of property will overlook or doubt the fact that the same dangerous conditions may be reached, every day, in storage stores and warehouses, by the accidental combination of many substances in common use. The explosion at the great fire in Broad street, New York, in 1845, was undoubtedly caused by the accidental combination of saltpetre with the charred bags or other carbon.

Strong nitric or sulphuric acid, mixed with wool, straw or certain essential oils will cause combustion.

Calcined magnesia and sulphuric acid will almost instantly ignite. Chlorate of potash and loaf sugar reduced to powder will ignite with the addition of a drop of sulphuric acid.

Fuming acid of nitre mixed with oil of turpentine will ignite instantly, and *the experiment proving it is a very dangerous one* to be carefully made, the experimenter being careful not to approach too close to the mixture. —Watson's *Chemical Essays.*

Wood, which has been for a length of time in contact with flues containing hot water or steam, seems to be reduced gradually to a condition favoring spontaneous ignition. The destruction of the English House of Parliament and many other fires have been attributed to this cause.

Many of the fires originating in *Broom Corn* warehouses are supposed to be due to spontaneous combustion resulting from the saturation of the fibre with oil from the seed, expressed by the process of baling and handling, and the numerous fires in *cotton gin houses* may be largely due to the ignition of cotton saturated with oil from the cotton-seed expressed during the process.

Paint shops are particularly liable to fire, on account of the linseed oil used. A paint shop in a building is always an objectionable feature, and in manufacturing establishments, such as plow works, carriage shops, agricultural implement manufactories and others, great danger exists from the carelessness with which linseed oil is frequently handled by persons ignorant of its dangerous properties.

Junk stores and rag stores are very liable to spontaneous combustion and are not safe risks to insure; aside from the questions of unsatisfactory values, which are always involved in the adjustment of losses on them, they contain, at all times, miscellaneous rubbish picked up in the streets—wisps of oily cotton, greasy rags, oily cotton waste, etc., etc., and as they are generally in the hands of persons ignorant or indifferent as to the dangers of spontaneous ignition, they should be carefully avoided by the insurance agent, either as risks or exposures.—*See list of prohibited risks, page* 91.

The agent must expect to find the danger of spontaneous combustion, however, in every class of risks. Even dwellings are not exempt from it. In one case a ball made by children out of woolen yarn which they had oiled to make it elastic and pliable, and had then covered with leather, thus fulfilling unconsciously all the conditions favoring spontaneous combustion, was found to have ignited spontaneously and burned to ashes. A notable instance of spontaneous combustion in a dwelling was that where a mattress took fire. Upon examination it was found that, instead of being stuffed with hair, as was supposed, such materials as tow, flax, rovings, waste, and other substitutes, had been used by the upholsterer. A lounge, stuffed in the same manner, took fire. Numerous instances are reported each year to insurance companies of the spontaneous combustion of greasy overalls of painters left in buildings over night. In a case in Boston it was discovered that a pair of greasy over-alls which had been accidently covered up in the cellar, were on fire. In the case of a newly finished house, a fire started in a small pile of oil-cloth clippings, left by the carpet fitter. While spread out on the floor the heat was conducted away by currents of air, but in a pile it was confined, and the oily, vegetable fibre of the cloth ignited.

The sweepings of factories, drug stores, grocery stores, machine shops or other risks where oil is used or kept, are very liable to take fire, especially if allowed to accumulate in corners, waste barrels or boxes ; and those risks where saw-dust is used on the floors, such as drug stores and grocery stores, are particularly liable to fire from this cause. The breaking of a bottle of olive oil upon the floor of a grocery store, saturating the saw dust with which the floor was covered, caused a fire sixteen hours afterward. The sweepings had been left in a heap where sun-light reached them and accelerated the combustion. Olive oil has not been considered dangerous, but its adulteration with cotton-seed oil (very common of late years), makes it as dangerous as any other.

For an interesting instance of the spontaneous ignition of shavings saturated with linseed oil in a drug store, see page 157.

Receptacles for waste and rubbish, especially in mills, should be of *metal*, as they would then serve to conduct the generated heat of their contents away, and where, through any neglect, such waste should not be removed over night, the danger would be less than where wooden boxes were provided. Wood—besides being itself combustible—is a poor conductor of heat, and serves to confine that generated until a dangerous temperature is reached.

Cleanliness and tidiness are indispensable to safety. *All miscellaneous accumulations of rubbish* are suspicious if not dangerous, and waste or dust boxes should always be kept outside of buildings.

It is particularly necessary to examine all risks where oily waste is used for cleaning machinery. A thorough inspector will examine carefully all closets, work-bench drawers and dark corners for such dangerous material. Where a general want of tidiness is the characteristic of any risk, it is best to decline it. Fire will be very likely to result sooner or later.

An instance showing the necessity for the thorough examination of every portion of a risk, and particularly of those "out of the way" places which are so liable to be overlooked by owners and insurance inspectors, was that of a fire in a large establishment at Zanesville, Ohio, in which the rule was to burn all oily waste and rags each day, under the boilers. One of the workmen, having occasion to go into the attic, found it full of smoke, and an investigation revealed the fact that the fire originated in some greasy rags *in the space between the brick wall and the eaves of the roof*, where they had been hidden by a boy who desired to collect and sell them on private account. Fortunately the roof was of slate, instead of shingles, and served to confine the fire long enough to ensure its discovery and extinction.

As before stated petroleum oils are not liable to cause spontaneous ignition. They have no affinity for oxygen, and their danger seems to be confined, as elsewhere stated, *to their liability to evolve dangerous explosive vapors*, and to their inflammability. See under head of Kerosene, page 73.

Among the authorities on this point are Prof. Anderson, of Glasgow University, who says: "By a special experiment I have found that petroleum does not absorb oxygen and, therefore, cannot cause spontaneous combustion." Dr. Hoffman, president of the London Chemical Society, says: "Petroleum oils are safer than animal or vegetable oils, inasmuch as they do not absorb oxygen, and cannot undergo spontaneous combustion." Prof. Wilson, of Edinburgh, says: "I find that mineral oil does not sensibly absorb oxygen, either alone or diffused through cotton wool and cannot take fire spontaneously." Prof. Frankland, Dr. Wallace, of Glasgow, and other scientists add their testimony to this effect.

For other fires from spontaneous combustion, see "Causes of Fires in Cotton and Woolen Mills," page 255.

KEROSENE OIL.

The almost universal use of kerosene oil for lights in all classes of risks, and especially in those located outside of the larger cities; the numerous fires and enormous sum of losses due to its use; and the very prevalent ignorance as to its qualities and danger, even on the part of underwriters,—those whose interests would seem to require an intimate knowledge of such a dangerous enemy to their business,—call for a more extended and thorough discussion of this important subject than might, otherwise, be necessary. We have reason to believe that many of our agents are in the habit of writing the stereotyped form of permit in policies, required by the National Board, for the sale of kerosene, without any clear idea as to the meaning or importance of its restrictions.

Some idea may be formed of the number of dangerous oils in the market from the fact that, of sixty-three (63) samples tested in the city of Baltimore, *only eight* (8) *were found to be safe!*

In 1869, Prof. C. F. Chandler was requested by the New York Board of Health to report upon "the traffic in dangerous kerosene." The result was an elaborate report, from which we shall quote freely, as occasion may require, in the following pages.

Crude petroleum, as it comes from the oil well, is a dark, greenish-brown liquid of offensive odor, chiefly a mixture of a great number of hydro-carbons—the average proportion of the mixture being 85 parts of carbon to 15 of hydrogen. These hydro-carbons differ in volatility; some evaporate rapidly at ordinary temperatures, making it unsafe to approach them with a flame, while others are less dangerous. Their volatility is intimately related to their specific gravity or weight—the lightest being the most volatile while the heaviest possess the higher boiling points. Their inflammability is also intimately connected with their volatility and specific gravity.

The light, volatile oils ignite or "flash" on being approached with a lighted match, *no matter how cold they may be*, while the heavier oils can only be ignited when the temperature is raised considerably higher than that of the atmosphere.

"It must not be supposed, however, that the *specific gravity* of an oil can be considered a *sure index of its safety*; on the contrary, the specific gravity gives very little idea of its safety, for while naphtha tends to render oil lighter, the average gravity of good oil may be maintained by the *presence of heavier oils*. A poor, dangerous oil may, in this way, actually be heavier than a safe oil."

Petroleum, as it comes from the wells, is subjected to a distillation or refining process, the first products of which are gases which require cooling with ice or compressing in order to condense them.

"Soon the vapors begin to condense in the worm and a stream of oil trickles from the far end of the coil into the receiving tank." It is at this point that the refiner may decide as to whether his oil shall be a safe or dangerous one, since it only depends upon the gravity at which he turns the product into the kerosene tank. If he waits until the product has a specific gravity of 58° Baume, before changing the direction of the stream from the coil into the kerosene tank, the result will be a safe oil. The price of crude naphtha is so low, however, as to make it a strong inducement for the refiner to turn it into the kerosene tank, where it will bring within a few cents per gallon of the market price of safe oil.

The product known as crude naphtha is separated, by redistillation, into (1) "GASOLENE,"—the lightest (used in gas machines, carbonizers or Carburetters); (2) "NAPHTHA,"—used for oil-cloths, cleaning, and for many of the dangerous brands of burning oil, and sold, Prof. Chandler states, under such names as "*Safety Oil,*" "*Danforth's Oil,*" "*American Safety Oil,*" "*Sunlight Non-Explosive Burning Fluid,*" "*Aurora Oil,*" "*Safety Gas,*" "*Petroline,*" "*Septoline,*" and so on, *ad infinitum!* (3) "BENZINE,"—used for paints and varnishes.

It rests entirely, as before stated, with the refiner as to whether he will manufacture a safe oil or not, *at an additional cost, per gallon, of only a few cents*, which any person should be willing to pay rather than expose his family to a horrible death and his property to destruction. When the difference between the cost of a safe oil and a dangerous one has been estimated by Prof. Chandler to be *one cent for sixteen hours*, the time-worn expression of "penny wise and pound foolish" seems weak to characterize the short-sighted economy which is practised every day in the purchase of kerosene.

The operation of testing kerosene is merely that of ascertaining the temperature at which the oil *emits an inflammable vapor*—the "flashing point"—or the temperature at which *the oil itself takes fire*—the "burning point." These tests, the "flashing test" and the "burning test," are often confounded, and when a law or ordinance specifies the "fire test," there is a doubt as to which of the two is intended.

"The 'flashing test,' which determines the *lowest temperature at which oil gives off an inflammable vapor*, is by far the most important, as it is the inflammable vapor *evolved at atmospheric or ordinary temperatures* which causes most of the accidents. Moreover, an oil which has a high *flashing* test, is sure to have a high burning test, while *the reverse is not true*."

The burning point of an oil is from ten to fifty degrees Fahrenheit higher than the flashing point, the two points being quite independent of each other. The "flashing point" depends upon *the amount of the most volatile constituents present—naphtha, etc.* While the "burning point" depends upon the general character of the whole oil. *Two per cent. of naphtha* will lower the flashing point of an oil *ten degrees*, without materially affecting the burning test. The burning test does not always determine the real safety of the oil, *i.e.*, *the absence of naphtha*. The "flashing test" should, therefore, be the only test mentioned in laws framed to prevent the sale of dangerous oils.

"What flashing point should be selected, as a standard of safety, is a question on which there is some difference of opinion. The higher the flashing point the safer the oil. Animal and vegetable oils do not flash below 500° to 600° Fahrenheit; hence it is impossible to have an explosion, or any burning accident, with a lamp or can filled with such an oil.

"The flashing point should be somewhat *higher than the highest temperature the oil ever reaches in the lamps or cans*. Our highest summer temperature does not far exceed 90° Fahrenheit, though a can of oil placed in the sun or near a fire might become much hotter."

"The point of 100° (a temperature sometimes reached in metal lamps) does not seem to be high enough to secure immunity from danger, though it may be said very few, if any, accidents occur with oil which does not flash below this temperature. In some State laws, 110° F. is fixed as a flashing point, and in one of them 120° F.

"When it is remembered that the temperature of oil in lamps sometimes rises above 100° F.—thus reaching a temperature at which even oils which do not emit a combustible vapor below 100° F. would be dangerous—it is apparent that 100° is too low a standard for safety; 120° F. would not be too high as a standard, and its adoption would not add three cents per gallon to the cost of the oil."

At ordinary temperatures gasolene and naphtha are continually giving off inflammable vapor, and a lighted match or lamp, at some distance from the material itself, will ignite it through the medium of the vapor.

The metallic attachments of ordinary lamps are sufficient to conduct the heat of the flame to the oil in the lamp, and to cause it to evolve dangerous and explosive vapors, unless the oil is a safe one. So long as the lamp is unbroken and kept closed, no explosion is likely to take place; but if *opened for filling*, near a *fire or flame of any kind*, an explosion is almost certain to ensue. It must be remembered that *actual contact of flame with the oil itself is not necessary.* The danger is from the vapor with which the vacant space in the lamp above the oil is filled. This vapor is invisible, is always under pressure—because gradually and continually generated in a confined space—and when released, as by the opening of a lamp for purposes of filling, expands in volume, sometimes sufficiently to fill a small room, and to reach the flame of a lamp or stove at some distance from the oil itself.

It is for this reason that lamps should never be filled at night; that kerosene should never be handled or sold within fifteen feet of an artificial light or stove; and it is for this reason, as well as on account of the danger from leakage, *that a can or barrel of oil should never be kept in the same room with a furnace, stove, or fire of any kind.*

A terrible instance of the danger from kerosene of a low flashing test, when kept or handled in warm rooms or near stoves, was that of a fire at Morton Station, near Philadelphia, by which, in consequence of the explosion of a one-gallon can of volatile kerosene or so-called "combination fluid," *four persons were burned to death.*

We quote from the published account of the investigation:

> "The room in which the explosion took place had a low ceiling and a very large stove, which had been kept at nearly a red heat, in order to expedite a large ironing. There was no light or fire in the room, except the one in the stove. A young woman, one of the victims, was still conscious and lived long enough to relate that her mother took the can of oil, removed the cork of the spout at the table—several feet from the stove—she instantly saw, on the removal of the cork, *a flash go from the stove to the can,* heard a loud hissing noise, and that was all she remembered!"

The explanation of this occurrence is very simple. The can of oil had been generating vapor in the warm room all day, until the space between the surface of the oil and the top of the can was filled with an inflammable gas under the pressure of its confined volume. Immediately upon removing the cork, the escaping vapor—expanding as it became released—filled the room and, igniting at the stove, caused the explosion.

Will any one say that the manufacturer and vendor of this oil were not guilty of a crime?

Unfortunately, the poor, with their small, over-heated rooms and cheap kerosenes, are too frequently the victims of unprincipled traffic in oils which are more dangerous than gunpowder.

Laws cannot be too explicit or penalties too severe to protect those whose necessities cause them to be misled by low prices, and whose ignorance prevents them from discovering their error until it is too late to save life and property.*

Tests of kerosene should be carefully made. Instruments for making the tests are simple contrivances for applying a slow heat to oil in which the bulb of a thermometer is placed. Upon the application of heat, the lighter portions of the oil rise to the surface and are there converted into vapor which, when evolved in appreciable quantities, will ignite, with a succession of flashes, on the approach of flame.

"The thermometer should not descend far below the surface of the oil; if the bulb is well covered it is sufficient. It is well to stir the oil before applying the flame, which should not be thrust against the oil, but should be flitted quickly across the surface after noting the thermometer. The oil should be heated very slowly; a test should never be completed in less than fifteen minutes, and when the oil flashes or burns but a few degrees from the standard temperature, it is hardly safe to spend less than twenty-five to forty minutes in raising the temperature of the oil to the flashing point."

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* It is estimated that between 5,000 and 6,000 persons lost their lives in the United States alone, during the year 1875, through the use of explosive kerosene—*an average of more than thirteen per diem!* At this writing, the account of the fatal burning of a mother and her three children, near Ogdensburg, N.Y., comes to us through the newspapers—another item in the long list of casualties forming a sad commentary on the cupidity prompting the sale of dangerous kerosene, and the short-sighted economy of purchasing it.

A rude and not very reliable test, but one which is still better than none, is to place some of the oil in an ordinary saucer, which may be floated on the top of water in a pan set upon a stove, with a thermometer in the water. The flame may be applied in the manner described.

One very simple test may be tried by any one. It is to pour a few drops of the oil into a saucer and apply a match; if the oil takes fire at once, *it is unsafe.* "*The fact that the material can be ignited at the ordinary temperature of a dwelling-house* should be a sufficient evidence, to a person of intelligence, that when employed in the household, for lighting purposes, it may, at the first thoughtless or careless act, become the cause of awful accidents."—*Dr. Wahl's Report on Kerosene to the Board of Underwriters.*

While it would not necessarily follow, from the test just mentioned, that an oil which does not ignite is a safe one (because the temperature in lamps is always greater than that of the atmosphere), *it may be safely assumed that an oil which does ignite is unsafe,* and there is no need to carry the experiment farther.

The fact that certain highly dangerous oils or naphthas will burn quietly, without explosion, when an unprincipled vendor unscrews the wick-tube of a lamp and applies a match, must not be taken as any evidence of safety. *A certain ratio of air to vapor is necessary to make an explosion.* The maximum degree of violence results from a proportion of eight or nine parts air to one of vapor. The vendor takes advantage of this fact when he practises the sham test just mentioned; *the proportion of vapor to air is too great to explode*, and it burns quietly.

If he should place a small quantity of the same oil in a tin can and shake it thoroughly, a sufficient quantity of vapor would probably be evolved to form an explosive mixture with the air in the can, and the result would be very different!

Petroleum lubricators should not evolve an inflammable vapor below 300°.

Any caution to those who make tests of kerosene, to be careful *and not endanger property by the very act which is intended to secure it*, would seem to be superfluous if a gentleman in New Bedford, in carelessly trying a fire test on a sample of kerosene, had not burned up a refinery—oil, barrels, still and buildings!

Recipes for making oils safe.—"Processes have been patented," says Prof. Chandler, "and vendors have sold rights throughout the country of patented and secret processes for rendering gasolene, naphtha and benzine non-explosive. Thus treated, these explosive oils—*just as explosive as before the treatment*—are sold under trade names such as those before mentioned."

"*It is not possible to make gasolene, naphtha or benzine safe by any addition that can be made to it.* Nor is any oil safe that can be set on fire at the ordinary temperature of the air."

"Safety" lamps, cans, etc.—"An indefinite number of 'safety' lamps have also been patented with a view to make it possible to burn explosive naphthas without danger; but the accident, *which is always more likely to occur outside than within the lamp*, is just as liable to take place. The lamp is dropped or broken; it is filled while burning; the servant neglects to screw in the wick tube; the oil is upset or left uncorked, or the servant *uses it to kindle the fire.* In some way or other, fire gets to the vapor of the oil, and an explosion occurs. Even when the "safety lamp" has an ally in the form of a "safety can," it still fails to make naphtha safe. It is an axiom that *no lamp is safe* with *dangerous* oil, and *any lamp is safe with safe oil.*"

The following are the requirements of the National Board as to kerosene:

"No permits are to be granted for the use of any of the products of petroleum *lighter than refined kerosene* for lighting purposes.

"In granting permission for the storage of kerosene the following endorsement, in substance, is to be used, viz.: '*Permission granted to keep for sale not exceeding five* (5) *barrels of kerosene or illuminating oil, which shall be of not less than the United States standard of* 110°. *Not to be handled or sold by artificial light within the distance of fifteen* (15) *feet.*'

"If more than five (5) and not to exceed ten (10) barrels are kept it subjects both building and stock to an additional charge of 10 cents. If more than ten (10) barrels, and not exceeding twenty-five (25) 20 cents additional, and if more than twenty-five (25) barrels, 50 cents additional should be charged. The limitation in all cases to appear in the policy."

Empty Kerosene, Naphtha or Gasolene Barrels are sometimes productive of fires, in consequence of carelessness in approaching them with lights. They are, nearly always, full of an explosive vapor, especially after standing in a warm place or in the sun, and have been known to explode with great violence.

At the date of writing this article, and while the first pages of this book are in the hands of the printer, the report of a fire, caused in the manner described, within a few blocks of the printing office, comes to us so opportunely for purposes of illustration, that we decide to give the particulars of it here.

The fire occurred in the store of Messrs. Bell, McLoughlin & Co., Beekman and Gold Streets, New York. A porter went into the cellar, with a lighted candle, for the purpose of filling an empty benzine barrel with linseed oil. No sooner had he commenced pouring the oil into the barrel, than an explosion took place, severely injuring him and setting fire to the store. Fortunately the fire which, at one time, threatened to be a serious one, was extinguished.

The pressure of the flowing oil evidently forced out the gas, which ignited at the candle.

Dealers are generally so careless with respect to empty oil barrels, that they should be cautioned by agents as to the danger of approaching them with lights.

Gasolene or Naphtha Gas Machines.—The lighting of buildings with gas manufactured by simply passing a current of air through gasolene, so as to evolve a vapor which rises very readily from it, has now become so general as to deserve careful and extended notice. Neither mechanical disturbance of the material, nor the application of heat, is necessary. The air itself readily takes up the vapor, and the gas resulting becomes merely a mechanical mixture, not a chemical union.

When the apparatus is safely arranged, the lighting of buildings in this manner may be safer than by movable kerosene lamps, especially in view of the fact that so much unsafe kerosene is now used ; but there are many unsafe gas machines, the owners of which deceive property holders and insurance agents with statements that their particular machines have been "approved by the underwriters." Every agent, therefore, should be thoroughly informed, so as to judge for himself as to whether a machine is safe or not, and as to whether the position in which it is placed, and the manner in which it is used, will justify his approval.

Gasolene or naphtha gas is simply a mixture of common air and gasolene vapor, in such proportions as to make it burn. The machinery usually consists of a metal tank or receiver, for holding the liquid, and an air-pump or "blower" to supply it with air. The tank should be in a vault of masonry, under ground, from thirty to fifty feet distant from the building to be lighted, if it is a dwelling, and from fifty to seventy-five feet distant, if it is a hotel, manufactory or other large building, requiring a greater number of burners. The aim should always be to mingle at such temperature that *it will not separate or condense afterward*, especially at ordinary temperatures, as the tendency of the mixture—particularly when fire-heat is applied to make the liquid vaporize—is to condense in the pipes at any temperature materially lower than that at which it is generated, for which reason *no artificial heat should be permitted.*

The receiver should be lower than the air-pump or "blower" (or meter), and the pipes throughout the building *should be inclined, so that any condensation will flow outside of the building and back into the tank or receiver.* Where the tank is lower than the building it is impossible for any of the liquid to flow into the building; and when a considerable distance intervenes between the tank and the building a further advantage is secured, the pipe passing under ground being cool, the gas is more likely to condense before it reaches the building, and a safer gas—one which is not likely to condense in the temperature of the building—enters the pipes.

The air-pump, "blower" or "meter," for forcing air into the gasolene tank, usually works by clock-work, the motive power being a suspended weight. As the air-pump requires frequent attention, and contains water which must not be allowed to freeze, and as it should be in a dry place, where the moving parts may not be injured by rust, some builders claim that it is necessary to permit it to be placed in the cellar of the building; but as furnaces are usually located in cellars, there would be a liability to great danger, if any of the gas should escape from the pump or blower into the cellar. The gas being heavier than the air, owing to the preponderance of carbon, is very liable to ignite at the furnaces and cause explosion and fire. For this reason the supply of air to the pump should, in all cases, be taken by an induction pipe *from the outside of the building*, so that any change of pressure, by which the gas in the tank should happen to be forced back into the air-pump and through the induction pipe, may not enter the cellar (as would be the case if the induction pipe opened into the cellar), but pass off into the outer air.

The gas of the tank may be forced back into the air-pump if the filling of the tank with gasolene is not properly done, as, for instance, where the vent cock is not opened during the process of filling from the barrel; the pressure of the entering fluid would force the gas through the pipe leading to the blower.

In this way the Cashier of the Continental Insurance Co. lost his dwelling-house and its contents. The air-pump took its supply of air from the *inside or cellar of the building;* and as he neglected to open the vent cock, while filling the tank, gas was forced through the air-pump and induction pipe into the cellar. A servant, entering the cellar a few moments afterwards, with a lighted candle, caused an explosion which fatally burned her and destroyed the building and furniture. The fire was peculiarly rapid, preventing the saving of anything of value.

The most approved gas apparatus now used has a vent cock so constructed that the cock for filling cannot be opened *without opening both.* An automatic check valve is also provided in the pipe leading from the air-pump to the tank which admits of passage only in one direction, *i.e., from the pump to the tank*, and effectually prevents any pressure of liquid or gas in the opposite direction. This valve is an improvement, but, as it is liable to rust from dampness, and to get out of order in consequence, it is not so reliable a precaution as *the more simple one of having the induction pipe open into the outer air, where any gas escaping can do no harm.*

There should be a cut-off stop-cock in the gas pipe, at the building, to cut off the tank from the house, if occasion should require it, and another at the tank itself for the same purpose.

It would seem unnecessary to add that all of the apparatus—tank, air-pump and pipes—should be made of the best materials and in the best manner. All of the pipes should be tested, by competent persons, before the gas is let on.

Particular inquiry should be made as to whether the person entrusted with the filling of the tank is informed as to the importance of having the vent open and the air-pump shut off before commencing to fill the tank, and as to the general danger of using a light in or near the gas-house or vault.

No barrels containing any of the materials should be permitted in or near insured buildings, and no empty gasolene barrels should be permitted near them, on account of the dangerous gas which such barrels always contain, as before explained. It is claimed that a pint of gasolene will impregnate and make explosive 200 cubic feet of air. As we have elsewhere stated, it depends only upon the proportions in which gasoline vapor and air are mixed, as to whether the result is a *burning gas* or *explosive vapor.* If the air is thoroughly carburetted it burns quietly; but if not, it explodes. For this reason the vapor found in empty barrels is nearly always a highly explosive one.

Gasolene Stoves, now frequently used in tin-shops for heating soldering irons, and in other risks for cooking, heating, and other purposes, must not be permitted by agents. The danger of these stoves is not so much from the mere process of burning gasolene vapor as from the *presence in a building* of the material itself, and the dangers inseparable from the handling of it. All receptacles are liable to leak, and, even in the hands of the most careful person, the filling of the receiver is attended with danger.

If such stoves are ever safe it is only where the receptacle for the gasolene is *outside of the building*, and the gasolene introduced to the stove by a pipe running through the wall. The material must not be stored in or near insured buildings, except as described in the small quantity for the use of the stoves.

Kerosene Stoves.—These should never be permitted unless with the most rigid restrictions as to the quality of the oil used.*

No oil which will flash below 120° F. is safe for the purpose, whereas the natural tendency would probably be to use, for purposes of fuel, as cheap an article as could be purchased.

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* Refer applications to the Company.

In those stoves where the reservoir for holding the oil is close enough to the flame to become heated, it may be questioned if any oil is safe. Vaporization would be inevitable. Almost any oil will evolve a dangerous vapor if sufficient heat be applied.

CARBURETTERS.

These are machines containing a light hydro-carbon, such as gasolene, for the purpose of enriching the ordinary city or coal gas which is passed through the liquid. Gas companies, in order to produce as large a quantity of gas from a charge of coal as possible, are tempted to pass over quantities of hydrogen gas, which has no illuminating power, and carburetted hydrogen, which is not much better.

The best kind of carburetters effect a saving of about twenty-five per cent. Those using what is known as the automatic feed and absorption process, by which the air is uniformly saturated with the gasolene vapor, and does not become so overcharged as to condense in the pipes, and which, to a large extent, obviate the necessity of pumping off any refuse or residuum—a process attended with more or less danger—are the best and safest.

It may well be supposed that almost the same rules of safety apply to caburetters as to gas machines.

They should be constructed of brass or copper, and not of iron, owing to its liability to rust and to the difficulty of making the joints tight. Water is the best filling for the space between the carburetter and the outer jacket or cover, as it hermetically seals the inlets and outlets and joints. In case of a leak, also, it would rush in and put out the lights throughout the building, giving timely notice of danger. The whole apparatus should be secured in a strong wooden box to be kept securely locked.

They should be located in the cellar, if possible, where an abundance of natural light will dispense with the necessity of using artificial lights, which should never be brought near them ; and they should be so located that the person filling them—who should be an expert, thoroughly understanding the necessity of care—need not pass with the material in proximity to furnace or other fires. In all cases, "safety cans" and gas-tight tubes should be used for filling.

As in the case of gas machines, gas pipes throughout the building should be inclined, so that any condensed material in them will flow back to the carburetter.

As carburetters require careful management, and to be filled by experts, they should not pass out of the control of manufacturers into the hands of those using them either by sale or lease for long periods.

The following requirements of the National Board as to carburetters are the findings of a committee of experienced underwriters chosen to investigate the subject, and may be considered as a concise recapitulation of the foregoing :

"Your Committee find, as the result of very thorough investigation, that Carburetters should be constructed throughout of brass or copper ; that only those using the automatic feed and absorption process are safe ; that the pipe should be so inclined as to drip back into the machine ; that water is the best filling for the space between the inner and outer tank ; that all the inlets and outlets to the carburetter should be gas-tight and water-sealed, and the whole securely enclosed in a strong wooden box, to be kept locked; that the hydro-carbon should be handled only by experts, approved by the Committee on Carburetters, and conveyed to the machine in gas-tight cans of inspected and approved construction; that Carburetters should be located generally in the cellar, in a light place, remote from furnaces and heaters, and accessible without passing in the neighborhood of fire, and that Carburetters should not pass from the control of the manufacturers and parties responsible for them into the possession of the individual using them, either by sale or lease for long periods."

PROHIBITED RISKS.

While all risks may be said to be insurable "at an adequate rate," it would be a difficult question to decide as to whether a reasonable presumption of moral hazard does not commence when the rate of any particular risk is so extraordinarily high that its owner cannot afford, but is, nevertheless, willing to sacrifice a material and undue portion of his earnings, to pay for insurance. It is safe to infer that he has some unusual cause for anxiety. On the other hand, it may be seriously questioned if the extremely hazardous character of some risks does not demand that their owners should retain a sufficient interest in them to ensure that watchfulness and care in management which the safety of other property exposed by them requires.

When the owners of some classes of special hazards become sufficiently alive to the danger and folly of *crowding all the different processes of a large manufactory under one roof, and learn to divide up their risks,* completely isolating the more dangerous processes, so that, in case of accident, they will not endanger large values, the list of prohibited risks of this Company will be much smaller than now, and the rates of insurance much nearer what their owners can afford to pay.

The following list is intended to bring prominently before the agent, in addition to the risks mentioned on pages 23 to 27, and in the alphabetical list of hazards in the latter part of this volume—to which the agent should refer before submitting any special hazard—those obviously undesirable risks which we wish to avoid, and will, we believe, be found to contain few which an intelligent agent would recommend us to accept.

For other risks to be declined for this Company, therefore, the agent is referred to the alphabetical list of hazards, pages 195 *to* 270, *and to pages* 23 *to* 27.

Auction Stocks.
Batting Mills.
Coal Oil Refineries.
Distilleries.
Drying-Houses or Kilns.
Fire-Works (manufactories or stores).
Public Greenhouses and plants in them.
Hay Presses using steam-power (or near railroads).
Summer or other Season Hotels, Sea-side Resorts, *and houses which have not a steady patronage throughout the year.*
Junk Stores.
Match Factories.
Museums.
Oil Refineries.
Opera Houses.
Panoramas, Dioramas, and other traveling exhibitions.
Pawnbrokers' Stocks.
Work-Shops connected with Penitentiaries or Prisons.
Public Halls *with scenery*, or stocks in buildings containing them.
Reform Schools, Houses of Refuge, etc.

Second-hand stocks of Furniture, Clothing, etc.
Shoddy Manufactories.
Theatres.

All wood-working risks using steam-power must be submitted to the Company before being made binding.

Small groceries, with "groggeries" connected, in the outskirts of towns, or near water fronts, *are poor risks*, and should be avoided.

Blooded cattle and horses of fancy values, race horses, stallions, etc., must not be insured without first advising with the Company. A serious moral hazard often attaches to the insurance of such animals when injured or diseased in any way. Training stables, containing valuable race-horses are not desirable risks.

Remote risks, located outside of the district covered by the agent's commission of authority, should not be submitted to the Company unless the agent is well acquainted with applicants, and has facilities for frequent supervision of the risk. When the Company insures such outside risks, it requires a signed application, and limits the amount of insurance to two-thirds the value. As a rule, however, we do not want such risks.

As before stated, *all manufactories standing idle, or other unoccupied or unproductive property, should be avoided.*

So many new hazards come up each year for consideration, following, as they do, closely upon every discovery of the chemist, that the agent may safely be instructed not to make any insurance binding on a risk—even though not prohibited in this book— *the hazard of which he does not himself thoroughly understand.* All such risks should be first submitted to the Company with a full survey and description.

During the past few years many new and dangerous hazards have been developed, among which is that of "celluloid," a substance manufactured of gun-cotton and camphor to imitate ivory, and the only manufactory of which burned in 1875.

As a rule, those risks which are so few in number that they cannot be classified for statistics of average, are not desirable. Companies can seldom afford to take exceptional hazards.

APPLIANCES FOR EXTINGUISHING FIRE.

As a fire, once started, would burn, if no efforts were made to extinguish it, so long as there was combustible material to supply it with fuel, it must be conceded that the risks of a city or town become desirable in the direct ratio of its means for extinguishing a conflagration.

City Fire Departments.—These are efficient exactly in proportion as the men are well disciplined; for which reason, among others, *paid* fire departments are always more efficient and reliable than volunteer organizations, which have sometimes associated with them in large cities the most dangerous and unprincipled characters, who actually cause more fires than they extinguish. Those men whose only incentive to join a fire company is the excitement it affords are, as a rule, undesirable recruits.

The pay of firemen should never be contingent upon the number of fires attended.

Chief-Engineer.—Mr. Braidwood, for many years the efficient and intelligent superintendent of the London Fire Brigade, until his death in the great fire of the London Warehouses, on Cotton's wharf in 1861, in his work upon the extinction of fires, says, "It is now generally admitted that the whole force brought together to extinguish a fire should be under the direction of *one individual.* By this means all quarreling among the firemen about the supply of water, the interest of particular companies and other matters of detail, is avoided. It is quite obvious that a fire brigade, however complete in its apparatus and equipments, *must depend for its efficiency on the state of training and discipline of the firemen.* Wherever there is inexperience, want of co-operation, or confusion amongst them, the utmost danger is to be apprehended in the event of fire. It is amidst the raging of this destructive element, the terror and bustle of the inhabitants, that organization and discipline triumph; and it is then, too, that coolness and promptitude, steadiness and activity, fearlessness and caution are peculiarly required; but, unfortunately, it is then, also, that they are most rarely exhibited." He adds, "On no account whatever should directions be given to the firemen by any other individual while the superintendent of brigade is present,"—a most important matter.

The importance of permanence in the positions of Chief and Assistant Engineers of fire departments was a topic considered at the convention of Chief Engineers, held in New York, in October, 1875. It was premised that "these officers are entitled to no permanency except that which their merits and ability as firemen and leaders of firemen entitle them to," but that "permanency in such offices is essential to proper discipline in the force and to secure the advantages of education and experience. The greatest evils result from the uncertainty of tenure of such offices and the influences under which officers are appointed to, or dismissed from office. If party fealty and efficiency are to be regarded as tests of merit, *the least efficient fireman in the department, or any one out of it, may hope in that line to rival and supplant the Chief!*"

When men, ever so well qualified, are placed under an incompetent and inexperienced leader, they are, in emergencies, well nigh helpless and useless. "Under such circumstances it will often be the case that private members will possess more knowledge of the duty to be performed than their superiors have, which inevitably tends to disrespect and a lack of proper subordination."

It was remarked by the first Napoleon, when speaking of Marshal Ney, "better an army of deer commanded by a lion, than an army of lions commanded by a deer!"

The whole general force of a city should realize that their position will be permanent during good behavior and efficiency.

FIRE APPARATUS, ENGINES, ETC.—The subject of Steam Fire Engines, and their advantage over the old-fashioned hand engines, which require a large force to work them, are so well understood as to require no comment.

Next to them in importance are *Hook and Ladder Trucks*, with a supply of pails and axes and fire extinguishers to each truck. There should be not less than eight ladders to each, including one extension ladder, and six, or more, short hooks, two of fifteen feet and two of nine feet long.

Fire Extinguishers on wheels are valuable accessions to fire departments, but must not be regarded as taking the place of steamers.

Tarpaulin Cover Companies and Salvage Corps are very useful for covering up such merchandise as might, if unprotected, be badly damaged by water even though not burned.

Uniform Thread and Dimensions of Hose-Couplings.—The dimensions recommended by the National Association of Fire Engineers are as follows: *inside* diameter of couplings 2⅝ inches in the clear; *outside*, 3⅛ inches, exclusive of thread; and, including the thread, 3⅜ inches. The number of threads to the inch to be *eight*.

The same dimensions should be followed by all mills and manufactories relying upon the co-operation of the nearest city or village department in case of fire. It has frequently happened that such auxiliary aid has been valueless, simply because hose and hydrant threads would not fit those of the department, and reducing or expanding couplings had not been provided to remedy the fault.

The same difficulty would exist, in case of an emergency in a town requiring the assistance of a neighboring city, unless a uniformity existed as to the size of hose couplings and threads.

As early as 1830, Mr. Braidwood suggested that, if uniformity in the structure and design of apparatus could extend to the most minute particulars, "a screw or nut of any one engine would fit every other engine in the kingdom."

Subscriptions to Fire Apparatus.—Nothing can be more unreasonable than the demands, sometimes made upon insurance companies, for subscriptions to purchase new and approved fire apparatus in towns unprovided with efficient departments—*followed, as such improvements invariably are, by demands for lower rates.*

No conservative insurance company, probably, has a greater amount at risk in the whole compact portion of any town than is equal to the value of one of its principal stores, and the merchandise contained in it, *and, therefore, certainly, no greater interest in the fire-extinguishing apparatus of the town than has the owner of such a store;* indeed, in view of the distributed nature of its risks it may be said to have much less; and yet it is frequently expected that an insurance company will subscribe many times as much as such a property-holder would be willing to pay, *and afterwards make such a material deduction from its rates of premium as would seriously lessen its receipts.*

The subscription of even a small amount in each of two thousand towns would amount in the case of a company doing an extended agency business, to a severe tax upon its receipts

No more valid or substantial argument could be urged for a reduction of rates than *a reduction of risk*, by the improvement of the fire-extinguishing apparatus of a town, *where the rates before were based upon the absence of such apparatus.* Insurance agents, however, should be very sure before urging or encouraging any reduction of the tariff that *the rates are high enough to warrant it*, and that they are not, as is too often the case, *fully as low before as the very best of fire appliances would warrant.*

NIGHT WATCHMEN.—It will be found that a proper surveillance of these men, to insure attention to duty, is preferable to any system of rewards for the discovery of fires. Indeed the payment of rewards to watchmen for the discoveries of fires has been found, in many cases, to be productive of more harm than good.

FOR THE APPLIANCES NECESSARY IN PRIVATE BUILDINGS, MILLS, MANUFACTORIES, ETC., SEE UNDER HEAD OF SPECIAL HAZARDS.

Water Supply.—A very important subject. Many cities relying on a formidable array of steam engines seem to entirely overlook the necessity for an adequate supply of water. Few cities in the country have enlarged their water-pipes—especially the mains—to correspond to the modern architecture of high buildings and mansard roofs; in many instances the supply of water being inadequate even to the original area of low buildings.

Pipes should not be less than twelve inches in diameter to supply the hydrants of the thickly-settled, compact parts of towns, and should be laid at least six feet deep, that their capacity may not be lessened by the formation of ice in them.

Canals, *Mill-Ponds* and other bodies of water which are liable to be emptied at times, for purposes of cleaning or repairing, are not reliable for a water supply for fire purposes.

Where cisterns are relied upon the agent should make it his duty to see that their capacity is sufficient, and that they are kept full. The following convenient table will enable any one to measure the capacity of cisterns.

CAPACITY OF CISTERNS IN U. S. GALLONS.

For each 12 inches of depth.

4 feet diameter......	94	11 feet diameter....	711
5 “ “	147	12 “ “	846
6 “ “	211½	13 “ “	993
7 “ “	288	14 “ “	1115½
8 “ “	376	15 “ “	1322
9 “ “	476	20 “ “	2350
10 “ “	587½	25 “ “ ...	3672

For example, a cistern 25 feet in diameter would contain 3672 gallons for every foot of depth; and, if 10 feet deep, 36720 gallons, or 918 bbls.*

A simple rule may be stated as follows: To find the contents in U. S. standard gallons *for each foot of depth* of a cylindrical cistern with a circular base, *multiply the square of the diameter (in feet) by* 5⅞, *the product will be the contents in gallons.*

For example, a cistern 20 feet in diameter and 10 feet deep would contain 20×20×5⅞×10=23500 gallons (see table above).

"*A reservoir system* is preferable to all others. While a large reservoir, however, is desirable for *storage* purposes it is not indispensable for *fire* purposes. A comparatively small reservoir placed at such moderate elevation as might be gained without great expense for stone or brick work, where no natural facilities exist, would afford all supply needed for engines at fires. The amount drawn from the New York reservoir for fires is rarely so great as to be even perceptible."—*Report of the Committee of Fire Engineers*, 1875.

All systems of fire extinction depending upon a direct acting, service system, without auxiliary, *movable* engines are not to be relied upon. Notwithstanding that such systems have, at times, rendered efficient service, they have, at others, *signally failed.* In the year 1875, the city of LaPorte, Ind., owing to the lowering of the lake from drouth, which prevented the free flow of water through the pipes, was literally without means to extinguish fires, as it had no other reliance than such a

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* A steam fire engine will throw as much as 600 gallons (15 bbls.) of water per minute. How long it would take such an engine to exhaust a cistern, such as is frequently relied upon for fire purposes, may be readily estimated.

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system. The city of Indianapolis was also, lately, dependent upon its movable steam engines—which it had fortunately not sold upon the completion of its waterworks—to extinguish what threatened to be a sweeping conflagration.

The following extract is from the report of the Convention of Fire Engineers, before referred to:

"The advantages of any system which exerts a *uniform pressure* upon the distribution pipes must be obvious to all. In the proportion that the hours in a year during which no conflagration is taking place exceed the hours of such conflagration, any steady pressure is preferable to any irregular one. There may be defects in the pipes under any system; but in cases of a constant and uniform pressure, breakages are less likely to occur, and if they occur the probability is very great in favor of their taking place at a time when *the exigency fo a fire is not coincident with the breaking*."

For the extinction of kerosene and other oil fires, water, unless supplied in such quantities as literally to deluge a fire, is not efficient. Carbonic acid gas extinguishers are probably the most effective. Sand or clay is also recommended.

A uniform system of indicating the location of hydrants, plugs, fire alarm boxes, etc., should be followed. It is recommended that they be of uniform color, and that a *bright red* is the most desirable. They should be as near street corners and streets lamps as possible, and, in compactly built districts, hydrants should be sufficiently near each other to employ two lines of hose for each engine, if necessary.

We have dwelt at some length upon the subject of fire departments and water supply, believing that the agents of insurance companies can do much, if so inclined and properly informed, to correct many of the evils now existing.

LINES.

The agent must never exceed the amount of line authorized by his commission of authority. Any contract made for a larger amount would, of course, be void. If his commission of authority is not sufficiently liberal to meet the requirements of his business he should, as before stated, bring the fact to the notice of the company.

As to the accumulation of risks in any one block, or in an entire town, so much depends upon all the circumstances of each particular case, such as water-supply, fire department, character of buildings, etc., that no general rule can be here laid down. The Company keeps an oversight on these points and will advise the agent. *He should not write in or upon two buildings, which would burn by one fire, for a larger amount than on one.* Risks should be well scattered, and, if possible, at least *one good "B" building should separate two full lines.*

He should not write for *two different parties under the same roof*—it is better to insure them in different companies; for, although the aggregate of the two amounts may be within the authorized line, and no objection exist on this account, adjustments are generally embarrassing in such cases.

The only safe course for a company to pursue is to keep its lines well scattered, so as to escape any severe loss by a single fire, and, on the other hand, *the only safe company for a policy-holder to insure with is one which is content to do a limited business in a large* *number of cities or towns, rather than an extensive business in any one.*

A company confining its business to any one city—no matter how large or inviting it may be—will be compelled to crowd its risks and assume unsafe liabilities, *in order to secure an amount of premiums sufficient to satisfy its stockholders with dividends.* When a great fire like that of Chicago or Boston comes to such a city—as come it may to any city in this country—such a company must inevitably fail. At the great fire of Chicago there were local companies whose gross assets were not equal to a payment of ten per cent. on the aggregate amount of their loss claims! (and one such company had assets of nearly $300,000.) As the legal rate of interest in Illinois is ten per cent., the creditors, after waiting a year, may be said to have received simple interest merely on the amount of their claims and to have lost the principal altogether!

An intelligent property-holder will carefully consider such facts. No company which confines its business to the risks of any one city or town is a safe one in which to insure property located in such city or town, and in deciding as to companies in which to insure, he should not select those which must inevitably fail *by the same fire that destroys his property. The coincidence of loss of property and failure of indemnity might, to say the least, be embarrassing!*

Where, as in the "Dry Goods District" of New York, for example, his property happens to be located in a section liable to a sweeping fire, whose destruction would bankrupt at least three-fourths of the insurance companies, he should select companies doing an extended agency business, who are not dependent upon such a district for dividends, and who can afford to dispense with an undue amount of its premiums.*

RATES.

An important subject, upon which the safety of companies and, indirectly, the security of those insured by them depend.

Only those companies of long standing, whose experience has extended over the entire country, during a long series of years, are competent to judge as to what are adequate rates. As a rule, such companies are seldom to be found among competitors for low rates. It is the companies of ephemeral growth that usually succeed in getting unprofitable risks. Indeed, low and inadequate rates are nearly always the result of the desperate efforts which unsuccessful and weak companies make to get a volume of premiums on their books. Their efforts may be compared to the struggles of drowning men, which are without other result than to break the ice about them and endanger the safety of others without helping themselves.

Agents frequently urge the acceptance of risks at inadequate rates, pleading that *other companies will accept at the rates offered.* This is a poor argument. Such companies may have had very little experience with the particular classes of hazards. *They may have yet to learn what the company declining the risk has already found*

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* The value of buildings and merchandise in the dry goods district of New York has been estimated to be more than four hundred millions of dollars. As the entire value of property destroyed in Chicago and Boston was not over one-half of this sum, and its loss caused the failure of one hundred insurance companies, some idea may be formed of what would be the effect upon many companies doing only a local business in the City of New York if this district should burn.

out. In such cases it would be unreasonable for an agent to expect a company to ignore its experience and records. It would be more sensible to let those companies have the risks *who solicit them at the rates, and who think they can make money by insuring them.*

To enter into a reckless competition of "bids" for risks, is to permit the business of insurance to degenerate into a mere auction of policies, in which the companies virtually say: "Here is a responsible policy. It is worth so much, *as all of our statistics show*, but we will sell it for a less amount—indeed for what you will give!"

"It is at the point where competition commences among companies," says one of the ablest journals of the country, that "the property-holder should scrutinize *the quality of the indemnity* offered him, at higher or lower rates, as carefully and intelligently as he would compare *the quality of goods offered him by competing merchants at different prices.*" Unfortunately, however, the intelligence displayed by some business men in mercantile transactions of comparatively little moment is not exhibited by them in the more important matter of selecting companies in which to insure the entire value of their destructible property.

It frequently happens that a merchant has before him two applicants for credit, both of whom are equal as to means and honesty, but one of them careful as to his purchases, cautious as to his sales—selling to few and only to reliable men and for short credits—content to do a steady and conservative business; the other buying largely, selling indiscriminately to any and every purchaser, and frequently at prices manifestly below cost and at a loss. An intelligent business man would not hesitate long as to the relative safety of trusting two such men. The question coming before him, however, is almost precisely analogous to that so frequently presented in deciding between two insurance companies, as to the relative value of the indemnity offered by them, and it is surprising that the conclusion arrived at, in the one case, should sometimes be so different from that reached in the other.

Property-holders are apt to forget that the principles on which an insurance company conducts its business have more to do with its reliability and strength than have its capital or assets.

Whatever may be said of exceptional years of profit, the past few years have taught companies to prepare for exceptional years of disaster, and rates must be obtained which will enable a company not only to pay the losses of the current year, *but to meet such misfortunes as the fires of Chicago and Boston.* To this end the surpluses of prosperous years should not be paid away in dividends to stock-holders, but retained and safely invested to meet any emergencies which may arise ; and where any company pursues this conservative and wise course there can be no question that *its policies are worth more than those of another acting on a different principle. It can offer substantial guaranties as reasons for requiring adequate rates, holding, as it does, any surplus over present needs for future emergencies.*

Rates should be higher in those States imposing burdensome taxes on the gross amount of premium receipts of companies, in exact proportion as the costs of doing business are increased thereby.

Where the legislators of a State are so short sighted as not to recognize the advantages of drawing upon the capital of other States to pay the losses of its citizens, the receipts of companies are frequently so reduced by successive impositions of State taxes, County taxes, municipal taxes, fire department assessments, license fees, etc., as virtually to exclude reliable and conservative organizations. No taxation can be considered legitimate that is not based upon *net receipts—that amount which is taken from a State after deducting from the gross receipts all losses paid and expenses incurred.* A company paying to the citizens of a State, for losses, a larger sum than it has received in premiums, might well be excused from paying taxes on its receipts.

Agents sometimes draw unwarranted comparisons between the rates of different cities, utterly ignoring important differences in fire departments, water supply, police regulations, character of buildings, etc. A recent survey of two important cities showed that *neither of them possessed a single building approaching the New York standard.*

It is a fallacy to suppose that a small town is as well protected by a few engines, as a large town is with a proportionably larger number. A fire in a large city, like New York, where forty or fifty steam engines can be almost instantly congregated at the scene of a conflagration, is much more likely to be extinguished than one in a small town with only two or three steamers; notwithstanding that there may be, in the latter case, *as many engines to the square mile of district protected* as in the former.

The probabilities of successful contest with fire increase almost in a geometrical ratio with the number and quality of appliances.

It is not uncommon for an owner of property to urge, as an argument for a low rate, the fact that his building has stood for a number of years without accident. He has, perhaps, paid premiums to the amount of many hundreds of dollars for ten, fifteen, twenty or even thirty years "without ever having had a loss," and he seems to think that he has had nothing in return for his money which, he claims, "might just as well have been saved." He forgets that during all this time he has *had the security which insurance afforded him*, and has enjoyed a consequent freedom from anxiety.

He urges, not that a building which has stood twenty years has been a good risk for that time, but that, *de facto*, it is and will be for as many years more, and ought to be insured at a lower rate *upon its record*—"as an exception to its class."

Any intelligent agent, of course, knows that the number of years a particular building has stood or is likely to stand is not the basis upon which the business of insurance is conducted. That a building which has been free from accident for a number of years *has been* a profitable risk is a very obvious deduction, but that it will continue so, for any number of years longer, does not follow. The only true basis is *the number of risks of a kind or class which will burn in any one year, out of a thousand of like nature.* Perhaps the most convincing argument, in answering such a person, is to meet him on his own ground and explain to him how many years it would require for his annual premium to amount to the face of his policy and pay a total loss, leaving out of the calculation, altogether, the possibility or chance that his property *might burn within twenty-four hours* after the policy is written.

Take the rate of one per cent., for example. Without regard to the interest secured from its investment, it would, of course, take just one hundred years, not allowing anything for expenses, such as commissions to agents, taxes, etc.; and this would be the length of time required, assuming the company to have only the interest on the premium received for its profit on the business.*

WRITING POLICIES.

The agent cannot be too careful in writing policies. He should confine himself to the carefully prepared forms laid down by the Company for his guidance in all cases where the circumstances permit it, and avoid carelessly worded contracts, written on the spur of the moment, or to gratify the unreasonable whim of some over-particular customer who, perhaps, fancies that such forms are intended to protect the company only, at the expense of the assured. No greater error could be made. An honorable company seeks only to protect itself from fraud and the consequences of stupid blunders, and it will be found, in nine cases out of ten, that the clearly worded policies of such a company will protect the assured better than any he is likely to frame for himself. A company desirous of securing business is not apt to be so short-sighted as to publish and insist upon inequitable or unfair forms, and no honorable company desires disputes or misunderstandings in cases of loss which might be avoided by definite and unmistakable contracts.

It is well to bear in mind always, when writing a policy of insurance, that though it may lie forgotten in some bureau drawer or office safe for years, it will *become, in case of fire, as important as a deed for the same amount.* Nothing can be more embarassing for all concerned—the assured, the company and the agent—than to discover, at such a time, that the instrument to which they must refer for a definition of the respective rights and obligations of the parties, is indefinite, illogical, and inconsistent, not only with the policies of other companies on the same property, *but possibly with its own terms*, and that each party must make disagreeable concessions in order to harmonize a contract which might just as well have been clear and explicit from the start.

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* A specific Tariff of Rates is furnished by the Company to each agent.

An agent will sometimes write a policy for five thousand dollars with less care than he would a check or note for fifty, notwithstanding that within twenty-four hours the policy may become a claim for its whole amount! Such indifference is inexcusable.

Before writing a policy refer to pages 271 to 290, for a form suited to the risk, and *unless it conflicts, in important respects, with existing insurance in other companies on the property,* follow it carefully and as literally as the facts and circumstances will allow.

All the insurance upon the same property, however, should be concurrent, that is, the contracts or policies of all companies insuring it should read alike, both as regards the description of the property, the different classes of property covered, and the proportion in which the policies apply to or cover them. The policy of one company, for instance, on a stock of "groceries, dry goods and crockery," should not cover *groceries and crockery*, that of another *dry goods and crockery*, while a third, possibly, covers *all three.* Nor should the policy of one company cover a specific amount on each, while another covers all under one sum.

Non-concurrent policies are always productive of dissatisfaction in case of loss, and seriously embarrass adjusters. The assured nearly always suffers, since the companies undertake to protect themselves by conditions in their policies against the non-concurrent contracts of others, and where the assured is so short-sighted as to conceal the wording of subsisting insurance on his property, that he may secure a policy covering property not mentioned in it, he generally secures loss to himself. The better way is to have all incorrect policies corrected, and the whole insurance made concurrent. The companies themselves would much prefer this plan, and cheerfully undertake the trouble. When the agent cannot obtain copies of other policies on the risk, he should either decline the risk or insert the following form of permit for other insurance. $...... *other insurance permitted, it being agreed that the whole amount thereof shall, so far as this policy is concerned, be considered as written concurrently therewith*, being particular to explain the purpose of the clause to the assured. Even when the other insurance is concurrent he should write the permit in the following form : $...... *other insurance permitted concurrent herewith.*

Insert the amount of other insurance. Do not permit an indefinite amount. An agent should exercise the same caution in limiting the total amount of insurance by all companies on a risk to a safe figure, as compared with values, as when he carries the whole amount in one policy, (see *ante*, p. 21.) Investigate carefully all applications for permitting additional insurance, both as to value and concurrence.

Too much attention cannot be paid to this important matter of the concurrence of contracts, and the agent will do well to explain to an applicant that it is *to his own interest* to have all of his policies read alike. Non-concurrent policies are usually the result of carelessness on the part of the insured or of the agent, who, having failed to protect a particular class of property in one policy, seeks to remedy the omission by taking out another in some other company. Efforts have been made to harmonize the differences which invariably arise in such cases, but without success. No rule of adjustment which would probably be acceptable to all the companies interested will cover non-concurrent contracts so as to protect the assured.

Take, for example, the following illustration. A party having $5000 worth of flour and $5000 worth of grain, secures an insurance of $5000 on *flour* with company A. Finding that his grain is not protected he applies to company B for $5000 insurance, but insists on having it worded on *flour and grain*, declining to inform the agent of B how his other policy reads (he ought not to succeed in obtaining the insurance under such circumstances, but we will suppose that he does), and a total loss occurs. If company A should decline to pay over one-half the loss on flour, claiming that he has an insurance of $10,000, and its proportion is one-half, he will lose $2,500. Whereas, if both policies had been concurrent—and he might have had them so without paying any more premium—he would have been fully and unquestionably covered!

Having decided upon the proper form, it should be clearly copied in the register, *from which entry the agent should copy his policy.* The **full name of applicant should be written in all cases, and the day of the month of commencement and termination, and the amount should also be written in full,** and very plainly.

Under no circumstances should a policy or renewal be dated back to cover expired time. The contract must not be made to commence *before the day on which its* *terms are agreed to.* If it is desirable, for any reason, to have all of the policies on a risk expire on a particular day, the policy may be issued for "the time" from the date of the contract to the day of expiration.

It sometimes happens that a party entrusted with the care of insurance on property for the owner, will desire to cover up an oversight on his part by having a policy or renewal dated back. The agent should decline to do so in all cases. The precedent would be an objectionable one to establish.

There should be no erasures in a policy or renewal. If a mistake is made, do not attempt to erase it, but use a new blank, and return the incorrect one as "spoiled" to the company with the next monthly account.

The Numbering of Policies. Each policy should have a particular number by which it is to be always afterward known and designated, even though subsequently canceled. *Under no circumstances should the same number be given to another.* All policies and renewals must be numbered in successive order.

We have but one set of numbers for policies and renewals, renewals being numbered the same as new policies. For instance, if, after an agent has written, say, seventy policies, number "1" expires and comes up for renewal, the renewal should be numbered "71." If he now issues a new policy on some new risk secured, it should receive the next number, "72;" if, then, policy number "2" comes up for renewal, it should receive number "73," and so on.

When it is necessary to issue a duplicate policy or renewal to replace one lost or destroyed, *it should receive the same number as the original.* A duplicate must be such *in all respects*, number, amount, rate, etc., exactly corresponding with the record in the register of the original. It should have the word "duplicate" written across its face, and should be reported, by daily report, to the Company. When the next monthly account is forwarded, the fact of the use of a blank for the purpose must be reported to explain the missing blank with which the agent is charged. A memorandum should be made on the register to "issue a new policy at expiration." *Do not renew a policy, which has been lost and duplicated, by a renewal receipt.* A new policy should be issued at expiration, in such a case.

The agent should not give a number of his own to a policy written at the New York office, as it would interfere with our accounts. Such policies should always be known by the numbers they bear. The agent should not skip any number of his series because of the issue of such a policy.

The monthly account should show a continuous list of the policies issued. Do not skip or omit any numbers, but fill them in, in all cases, writing opposite each the particulars of the policy or an explanation of their omission, as, for instance, "canceled at request of company," "canceled, no premium paid," "not taken," etc., as the case may be.

It is not necessary for an agent to commence his series of policies with number "1." He may commence at any arbitrary number, 100, for instance, being careful to keep the series perfect thereafter. *Where he is appointed in the place of a former agent of the company removed or resigned, he should commence his numbers where such agent stopped writing*, or, if he desires to keep his record separate, he may commence with any number *higher* than the last policy issued, but never with one lower, which would result in duplicate numbers.

Never make verbal agreements. The policy or renewal must be the only contract of insurance. All tacit understandings or oral agreements as to what property is or is not insured by the policy are inadmissable, under any circumstances. Let the plainly written policy be the only reference, and if it does not clearly describe the property, *have it corrected before a fire.*

All policies should accurately describe the building insured or containing property to be insured, as follows, for example, "the *two story, brick, metal roof building with metal cornice and coped walls,*" or, "the *one story, frame, shingle* roofed building," or otherwise, as the case may be.

The location of the risk must be clearly and definitely described in the body of the policy, by street numbers, if possible, or, in the absence of street numbers, by the side of the street on which the building is located, and the names of cross streets between which it is situated, and distance in feet from the nearest; or, in the absence of cross-streets, by lot and block numbers. Descriptions of location to the company should be uniform; for instance, one risk should not be described by street numbers, and another, adjoining it, by lot and block number. Such discrepant references make it difficult for the company to keep a register of its lines exposed to one fire. Indeed, too much care cannot be used in particularly describing the location of risks, *especially when the building insured is one of a number of similar ones owned by the same party.* In case of a loss, under such circumstances, on a building *not insured,* claim might be made for it under an indefinite policy *intended to cover a different one.* When a building cannot be clearly and unmistakably designated by the written description, the policy should refer to a diagram showing it; as "*building marked "A," (or "No. 1,") on diagram, on file in the office of the company, which is hereby made a part of this policy.*"

Never write a policy on a building described as indefinitely as the following, for example, "*situated in the town of Jefferson,*" or "*on the south side of Adams street.*" The policy should describe the property as accurately as possible, and though not with the particularity of a deed of sale, yet with an accuracy which will, in case of loss, admit of no question as to the particular building intended.

An agent has no power to waive any of the printed conditions of a policy, and he must not attempt to do so by any written clauses, or by erasing any of the printed matter. Where the conditions are objected to, in any case, he should advise with the company, and take no action without their written advice.

As a rule, the printed conditions of policies are intended to protect the company against fraud, and every honest claimant's interest is better protected by their presence than it would be by their absence. Take, for example, the condition prohibiting other insurance without the consent of the company. Could anything be more dangerous to the public interest or safety than to permit a dishonest person to insure his property for an indefinite amount and without reference to its value. On the other hand, does not everyone feel better satisfied in knowing that his next door neighbor is restricted from keeping dangerous explosives and combustibles in his building by an insurance policy, though it prohibits them on his own premises as well.

The conditions in the policies of honorable companies are actually inserted *in the interest of the assured.*

Take, for example, the exception, noted in the policy of this Company, to the clause referring to policies made void by changes of title or ownership, as follows: "*except in case of succession, by reason of the death of the assured,*" (see condition 1.) This was inserted immediately after a decision of the Supreme Court of New York in the case of Lappin *vs.* The Charter Oak Fire and Marine Insurance Co., 58 Barber's Reports, p. 325, where it was held that "the vesting of a title in the heirs-at-law, on the death of an assured, was a 'change of title,' *by which the policy became void!*"

This construction was so clearly an act of hardship to widows and orphans, the destruction of whose property might be coincident with their bereavement in the loss of the head and support of a family, occurring at a time when, from the very nature of the case, they would not be in a condition to protect themselves or attend to the correction of business papers, that the policies of the company were immediately amended so as to protect them.

The interest of the assured must be clearly stated in the policy, if other than the unconditional and sole ownership. The following is the condition of insurance policies :

3. If the interest of the assured in the property be other than an *entire, unconditional and sole ownership,* for the use and benefit of assured, or if the building insured stands on leased ground, it must be so represented to the Company *and so expressed in the written part of this policy,* otherwise the policy shall be void. When property has been sold and delivered, or is otherwise disposed of, so that all interest or liability for loss thereon by fire or otherwise on the part of the assured herein named has ceased, this insurance on such property shall immediately terminate. Goods held on storage are not insured by this policy unless specifically mentioned.

The insurance of interests smaller than that of the fee simple is so often attended with moral hazard and danger, that companies have been obliged to protect themselves by a clause like the preceding in their policies. It is evident that if such interests as those of the mortgagee, and the minor interests of the life-tenant, lease-holder, and others, all of which are insurable at law, could be insured, as well as the interest of the owner in fee, a property might be insured by two or more different persons, for many times its value, each one taking a policy upon it for the full value, and a dangerous moral hazard result. Where several different interests require protection, all of the parties *should be joined in the policy.* This enables a company to restrict the amount of insurance to a safe proportion of the value and protects each interest as well.

When the insurance is for the owner in fee only, the written portion of the policy should commence with the possessive pronoun "his," "her," or "their," as the case may be, to indicate the interest insured; as, for example, $...... *on his two story, brick, metal roof building, etc.*

The interest of a mortgagee must not be insured direct and separately. He should, in all cases, be joined with the mortgagor or owner. The policy should be made in the name of the owner, in the usual manner, and with loss, if any, payable to the mortgagee; as follows, "*Loss, if any, payable to John Doe, mortgagee, as his interest may appear.*"

In case the mortgage should be afterwards paid by the mortgagor, the following endorsement may be made, "*The interest of John Doe, mortgagee, having been satisfied, the loss, if any, is now payable to the assured.*"

Do not Consent to Chattel Mortgages on Personal or Movable Property. Too many interests in movable property embarrass adjustments, and a presumption of moral hazard lies where an owner's affairs are in such an unsatisfactory condition that he is obliged to mortgage his personal effects.

Life Estate. Care and good judgment should be exercised in insuring this interest. The tenant for life who has insurance for the full value of property, of which he has only the use for life, has often much to gain by a fire. There is, under such circumstances, usually little incentive to carefulness on his part; on the contrary, there is apt to be a strong incentive to fraud.

The value of a life estate is not easy of ascertainment, and, moreover, decreases each year, and the better way, where all parties consent to the arrangement, is for all interested—both the tenant for life and the ultimate owner—to be joined in the policy, with a condition in the policy that, in case of loss, the money is to be applied *to rebuilding or restoring the property, a designated payee being mentioned in the policy.* This protects all interested. Another way is for the ultimate owner and the tenant for life *to agree as to the proportion of the insurance money each is to receive, in the event of loss, and to have it plainly stipulated in the policy;* as follows, for example, "*It is understood that, in case of loss under this policy, the same shall be payable in the following proportion, viz.,* $1000 *to John Doe and* $3000 *to Richard Roe.*"

Leasehold. This interest is not covered by a policy unless expressly mentioned by it, (see condition 3.) Where the owner of a building which stands on leased ground, and which will revert to the owner of the ground, by the terms of the lease, at the expiration of it, seeks insurance, it should be remembered, as has been before stated, that his interest in the property is not more valuable than *the right to use it for the time the lease has to run*—say what would remain, after deducting from a fair rental, such expenses as cost of repairs, taxes, ground rent, defaulting tenants, declining rents, etc. His interest depreciates in value with each year, and when within a few years of the expiration of the lease, the amount of the insurance should be very light, unless both owner and lessee are joined.

It is, sometimes, urged that a lessee will let a building deteriorate, for want of repairs, as his lease approaches its termination, so that, at the last, he will not lose much, and may, therefore, be safely insured; but this argument overlooks the danger common to all property, the owner of which has no inducement to carefulness. Any insurance, also, is more than likely to be *over-insurance.*

Where such an interest is insured, the agent should satisfy himself as to all the circumstances of the case—the length of the lease (which should be stated in the written portion of the policy)—whether by its terms the building reverts, at expiration, to the owner of the ground, or is to be paid for by him at a fair price, and whether the lease is renewable on equitable terms—all of which are important in deciding as to the lease and its value and the desirability of insuring it. If it seems desirable to issue a policy, advise the Company in the Daily Report as to all the facts.

Insurance of Leases (for form, see index.) These are seldom insured outside of large cities, where rents are high and where the lessee of a large building, in a desirable location, who has secured it for a term of years at a low figure, can frequently sub-let to great advantage —sometimes for thousands of dollars per annum more than he himself pays. In such a case, he has an interest which may be insured. He would clearly be a heavy loser by a fire destroying the building and canceling his leases. Great care should be taken, however, to see that the applicant has a good bargain. He may have taken the building when rents were high. He may not have secured tenants enough to fill it. Trade may have changed from the locality. It must be remembered that we do not insure except against *actual loss* of property.

Insurance of Rents, (for form of policy, see index.) Rents are, also, a legitimate subject of insurance. The owner of a well-tenanted building receiving annual rentals for his property, clearly loses something more than the mere cost of the building in case of a fire, if his leases, by their terms, are canceled by such fire.

The amount of the monthly payment, to be made under the policy, in case of fire, should not be more than one-twelfth ($\frac{1}{12}$) the amount of the policy, as this is the basis on which the rate is made. Where a larger proportion of the policy is payable per month, a proportionably higher rate should be charged, as a party might draw the whole amount of a policy, in case of a temporary loss of rents for only two or three months, and the company suffer a total loss, under its policy, for a mere temporary damage to the building.

Only an actual loss of rents is to be paid for. The Company should not pay rent for rooms which *were vacant, at the time of the fire, and for which no tenants could be secured.* To do so would be to offer, in some cases, a strong incentive to fraud.

Title of Property in the Name of a Wife. Although the husband has an insurable interest, at law, in the property of his wife, the condition of the policy requires that it be insured in her name, or, if in his name, that his interest be plainly stated in the policy. *A wife has no insurable interest, at law, in the property of her husband.*

Property in the hands of a Sheriff or U. S. Marshal. Do not insure without the consent of the Company first obtained. A serious moral hazard is often involved, especially in cases of seizure for frauds on the revenue, as in the case of whiskey, tobacco, etc. Fires are sometimes resorted to by unprincipled parties to cover evidences of guilt.

Assignee in Bankruptcy. While it may be claimed that the danger of moral hazard is past when a bankrupt assigns his property, for the benefit of his creditors, it must also be remembered that no one, after such an assignment, has that interest in the preservation of the property which is common to unembarassed ownership and so indispensable to ensure the care upon which the underwriter relies for his prospects of safety. Indeed it might, in some cases, benefit all concerned—owner and creditors alike—if the property should burn with a full insurance. The agent should, therefore, decline to insure, under such circumstances, without fully satisfying himself as to the honesty of all concerned. Not over three-fourths of the actual *cash value* should be insured, in any case, and, as a rule, not over one-half such value.

For Whom it may Concern. Decline to insert this clause in a policy. The names of all interested should be inserted in full. Agents and property-holders are apt to overlook the objection to this form, forgetting that we insure *the individual* against loss on his property, and not the *property itself.* Insurance is a contract of indemnity only, and no matter how good, physically, the risk may be, we would not insure an *unsafe man.* For this reason we must know whom we insure, that we may guard against fraud.

Insurance of "Agents" instead of Principals. Never insure an agent on the property of his principal. The policy should be in the name of the owner, but *may be made payable to the agent,* if it is desirable to do so, on account of the non-residence of his principal or for other reasons.

Insurance of the Insurance Agent's own Property. The Company will be pleased to write policies for any of its agents on desirable risks belonging to them. An insurance policy written by an agent on his own property, however, is void at law—a man not being able to make a contract with himself—a fact which the agent should know for his own good, and which it is due to him here to state. He should forward his application to the Company, and may rely on immediate attention to his request and a reply by return mail.

"Estate of," "Heirs of," etc. The property of a deceased person, which has not been divided, should be insured in the name of the executor or administrator. The expression "estate of," so frequently used in insurance policies, has strictly no legal significance, and is indefinite. It is, however, susceptible of explanation in case of loss, and is a very common and convenient expression for insurance policies. To insure the "heirs" of a person is objectionable, unless the loss is made payable to some definite party, such as the administrator, as it may be a question, in case of loss, as to who and where they are, and it might be claimed that the company should be responsible for the discovery of them. They are sometimes scattered in different parts of the country, and their release receipts, in case of loss, might be difficult to procure.

In all cases it is better to make the policy in the name of the executor or administrator, and if none has been appointed, the policy of this Company need not be changed upon the death of an assured, see *ante*, p. 116, and condition 1 of the policy, which excepts changes of title, in cases of succession, by reason of the death of the assured, from the rule requiring notice to and consent of the Company.

Commission Clause—"Merchandise Held in Trust or on Commission, or Sold but not Delivered." "*Held in Trust.*" This phrase is often misconstrued, and is erroneously supposed to cover property merely left in the custody of the assured, for which he is not responsible, in case of loss, and of which he is only a "bailee."

"A 'trustee' is the legal owner of property, which be is bound to convey, use or apply, for the benefit of another, but neither in technical nor ordinary language is a man called a 'trustee,' because some article has been left at his house or store, to remain there until called for."

This clause does not cover goods held on storage, if insured in the name of the warehouseman and not in the name of the owner. The policies of companies require that goods held on storage must be specifically mentioned and insured as such.

"*On Commission.*" This phrase is intended to protect, and does protect, property bought or sold under orders or commissions of third parties to the entire value of the goods, not exceeding, of course, the amount insured thereon.

"*Sold but not delivered.*" "What constitutes 'delivery' has been an open and much discussed question, and a very general misapprehension exists in the minds of merchants on the subject. If, after sale, the vendor is bound by contract or custom to deliver the goods, his policies should and do protect him, but with reference to a future delivery, agreed upon between the parties, unless such an interest is retained by the vendor as will ensure his care of the property, the insurance of it is not apt to be a safe undertaking." It must be remembered that we do not insure the *goods*—if we did it might be a matter of indifference to us as to who had charge of or owned them. We insure the *owner* against any loss he may sustain by reason of the destruction of the goods, and, as the safety of property largely depends upon the character of the owner for honesty and carefulness, the company should always know when a change of ownership takes place, and be in a position to withhold its consent if necessary.

The following extract from the report of a Committee of the New York Board of Fire Underwriters will be found to still further explain the matter :

> " We do not know why the seller should be relieved from all responsibility for care and safety of the goods, except fire insurance, which he or the Broker seems to suppose he may hold and trade off in the sale. If, after sale, he is bound by contract or custom for delivery, we believe it right that his Policies shall still protect him. We may not know whether or not his agreement for a future delivery has been made specially to hold the insurance, but we do say that if the insurance is thus necessary for the seller's protection, so *should be all other needed care and responsibility* for the goods until they shall be actually delivered. It is a technical wrong-wording to say, *we insure the goods*, and it leads to further saying and thinking that if we insure the goods, what matters it who may be the owner, if the fire be honest. Insurance is a personal contract between the company insuring and the *person*, owner or manager of the property described. We insure HIM

against any loss HE may sustain by fire to the property. ***We issue our Policies on our faith in the assured and his care for the property,*** **and we cannot suffer him to abandon any of that care of ownership whilst our Policy may be liable for a loss."**

The actual removal of the property from the custody and premises of the vendor is not necessary to constitute delivery. "If goods are sold in a store, separated and weighed or numbered—if that be necessary—and put into a parcel, or otherwise made ready for delivery to the buyer, in his presence, and he request the seller to keep the goods, for a time, for him, this is so far a delivery as to vest the property in the goods in the buyer, and the seller becomes the bailee of the buyer. If they should be burned while so held, the *buyer* would lose them." (*Parsons on Commercial Law.*) In some cases, as in the purchase of lumber, for instance, slight acts, such as touching it or even going near it and pointing it out, are sufficient to constitute delivery. The delivery of a negotiable warehouse receipt or of an order on a warehouse-man or third party having custody of the goods, constitutes delivery and the interest of the seller passes to the buyer. So, also, the delivery to the buyer of the key of a warehouse containing the goods would be delivery.

The illustration has been made use of by a writer on commercial law that if a certain number, say fifty, out of two hundred trees should be selected by a buyer and purchased of a gardener, though left growing in the grounds of the seller, he (the purchaser) would be the owner of them and lose by their destruction. If, however, he should purchase fifty of the number without denoting his preference for particular ones, they would, up to the time of such selection, remain the property of the seller, who would lose them if destroyed.

It is sometimes customary among brokers and merchants to attempt to sell a remaining interest in an insurance policy by inserting in sale notes, words like these: "Buyers to have the benefit of seller's unexpired fire insurance without charge." This may be agreed upon *as between the parties, but unless the transaction is completed by obtaining the consent of the insurance company to the transfer*, such clauses in any contracts for the sale of goods are powerless to convey an interest in the policy. In such a case it takes *three* to make a bargain.

The following is the resolution of the New York Board of Fire Underwriters as to this important point of goods sold, with an agreement as to a future delivery:

> "*Resolved*, That claims for loss of goods sold where it is truly set forth in the 'proofs of loss,' that in the sale note or contract of sale, there was in writing the following words (or others to the same effect)—'*Deliverable at the option of the buyer at any time within........days;*' or, if an order on the warehouse has been given, and such order was made to read '*Deliver to A. B. & Co.,* (*the purchaser*), *at any time within........days,*' (or words to that effect), the Insurance Companies, members of 'THE NEW YORK BOARD OF FIRE UNDERWRITERS,' will recognize the assured in the Policy named as the owner of the goods within and up to the time of such limitation, provided the number of days is fixed at the time of sale, and *then written in the contract or order;* and provided that the buyer shall not have presented his order and had the goods placed to his or other account in the store."

To collect the amount of insurance, in case of loss, it is necessary that the claimant should have an insurable interest in the property at the time of the fire, and it must be plain that the seller, who has sold property and is not liable to the buyer for it, *cannot take the required oath of interest. His responsibility for the preservation of the goods has ceased.*

Sold but "not Removed from Store." Decline this form. It is designed to evade the legal interpretation of the term "sold but not *delivered*." As before explained, actual removal is not a necessary incident of delivery. No one should be permitted to insure that which he does not own, and for which he is not responsible, in case of loss.

Re-insurance. As a rule, we do not wish to re-insure any Company. Wherever practicable the policy should be issued direct to the property-holder. It is, however, sometimes admissible to re-insure a company having a larger line than it ought to carry. The agent should be very careful, in such cases, to assure himself that the company dividing its line is not doing so under a concealed apprehension of danger, and especially should he guard against re-insurance, where any moral hazard is involved. The re-insurance should always be a question of *line* only, and never of *risk* or *rate*, that is, only to be effected for a company desiring to be re-insured where the line held by such company is too great for it to carry and not where the rate is too low. In reporting such risks by daily reports be particular to explain all the circumstances, and to state the *amount of insurance retained by the re-insured company, after deducting all re-insurance.*

The agent should assure himself, also, that the re-insuring company is not getting rid of the *poorest portion of a risk* by re-insuring it at the "round rate" of the whole. We would not re-insure *barns*, for instance, at the round rate for farm property, where the re-insured company retains the *dwelling*.

An agent of two different companies cannot re-insure one of them in the other. Such a policy would be void unless approved by the company issuing it. An agent cannot make a contract with himself, either personally or as an agent.

Under no circumstances do we wish an agent to issue the policy of this company for a larger amount than is meant to be retained, even when re-insuring the excess in some other company. Such a practice virtually amounts, in many cases, *to a guaranty of the policy of a weaker company without remuneration*, since, in case of loss, we would have the full amount to pay and to take our chances of recovering any portion of it from the re-insuring company, which might fail by an extended conflagration involving the destruction of the property. We clearly lose, also, in the case of re-insurance the expenses of commission, taxes, etc., paid by us on the premium.

In those cases where it may be necessary or advisable to re-insure our lines, we prefer to do so at the New York office.

Where our agents cannot place their surplus lines, we are, at all times, ready and willing to assist them by placing desirable risks in other companies in New York, securing for them the usual commissions.

Do not write a "Valued Policy," *i. e.*, one in which the value of the subject insured is mentioned. If the written portion of a policy fixes the value, there is little hope of escaping the payment of the amount, even though it be above the true value of the property. In all cases the value should be left to be determined after the loss. It is desirable, however, in some cases, to fix a *limit of value*, beyond which claim can not be made in case of loss. Especially is this the case where the property has a fancy value, not well established by rules of trade, such property, for instance, as paintings, valuable horses or other live stock, collections of curiosities, mineral, geological or ornithological cabinets, rare books, statuary, etc. When insuring paintings or engravings, where two or more are insured under one amount and not specifically, the following clause should be inserted: "*In case of loss, no one painting or engraving to be valued at more than* $ . . . ," (here insert amount), or the following: "*In case of loss, no painting or engraving to be valued at more than cost.*" Neither of these clauses fixes any value. They merely limit the maximum amount of claim.

Where horses or other live stock are insured, an amount should be named beyond which claim cannot be made, in case of loss, on *any one*. This prevents any claim being made for the whole amount, or an undue proportion of it, on a single animal. The number of animals should also be named, and the amount specified on any one should be a fair proportion of the whole; for instance, if $300 be insured on three horses, the amount limited to be claimed on any one should not exceed $100, or *one-third*. Where the amount is not limited to a fair proportion of the whole amount of insurance, the rate should be higher, since we might, otherwise, be virtually carrying several risks for one premium.

Insure the whole hazard—external and internal—or none. It is not uncommon for an applicant, who is dissatisfied with the charge made for an exposure, to offer to carry the risk of the exposure himself, claiming, possibly, that the danger is over-estimated; or, on the other hand, he offers that if the Company will insure him against outside dangers, he will run all risk, himself, of a fire originating on his own premises. Such contracts are objectionable. It is frequently difficult to arrive at the cause of a fire, and it will generally be found, after a loss under such a contract, that the company, while it has been receiving *a part only of the premium*, *has really been carrying the whole risk.*

A Policy should be Specific. A separate amount should be named upon each building insured, and a specific amount on merchandise in each. Under no circumstances should two or more buildings or their contents—unless they communicate *without iron doors*—be insured under one amount, without the average clause. Insurance should always cover specifically *on each side of an iron door.*

If two or more buildings, insured under one amount, be so situated as not to burn necessarily by one fire, the company would clearly be carrying two or more risks for *one premium*, unless the full value of each is insured, which is neither likely nor desirable.

Never insure a building and its contents under one sum.

When it is necessary, for any reason, to insure two or more buildings or their contents under one sum, the "distribution form" of average clause must be inserted.

Where personal or movable property consists of two or more different classes, it is desirable to insure a specific amount on each class. For example, if insurance is desired on a stock of hardware, tinware and fire-arms, a policy covering a specific amount on each class of merchandise is desirable but not imperative. Such a policy may close with words like the following, after the last division, "*and other merchandise not more hazardous*," to cover small omissions. The policies of all companies on the risk, however, should be *concurrent*, *and all should be specific or none.*

A policy on household furniture is improved by specific divisions, and, where the insurance is so written, an applicant is more likely to take a sufficient amount of insurance, his attention being called, by the divisions, to the amount necessary to protect him. In case of loss, also, an adjustment is easily and satisfactorily made, the assured having no one but himself to blame if he is insured for an inadequate amount.

Office furniture, fixtures, counters, show-cases, burglar or fire-proof safes, etc., should all be insured specifically, and never included under the same amount with stock.

Druggists' Jars, Bottles, Soda Water Fountains, etc., should also be insured specifically, and separately from stock.

Fresco Work and Gilding on Walls and Ceilings are not covered unless specifically mentioned. As such work is easily and generally irreparably damaged by fire, water or smoke, at least double the rates paid on the building should be charged—it is, at least, *four times as perishable.*

Plate Glass in doors and windows, if more than three feet square, (or nine square feet), and Plate Glass Mirrors should be insured specifically and a higher rate collected (at least double the rate on the building) owing, in the case of windows, to the liability of breakage either by the heat of a fire across a street or in a neighboring building, or by firemen in order to enter the building itself in case of fire.

Out-houses, Yard Fences, etc., should be specifically insured. Fences should pay at least one per cent., as they are nearly always broken down, in case of a fire.

Curiosities, Collections of Birds, Cabinets of Mineral or Geological Specimens, Collections of Coins, etc., if insured, must be for small amounts, and specifically, a limit of claim being written in the policy as to any one specimen, in case of loss. (See *ante*, page 129.)

The following property is not covered by a policy unless mentioned in it: *jewels, plate, watches, scientific or musical instruments,* (piano-fortes in dwellings are covered, under a policy on household furniture, by this Company), *ornaments, medals, patterns, printed music, printed books, engravings, paintings, picture frames, sculpture, casts, models or curiosities—and in no case exceeding the cost thereof—unless by special agreement,* (see condition No. 2 of the policy.)

The following property must not be insured, under any circumstances: *money, bullion, bills, notes, accounts, deeds, evidences of debt, securities of property of any kind, or manuscripts.* An agent of intelligence will readily understand why.

Avoid all ambiguous or incomplete language in writing policies, such as the indefinite words "**articles,**" "**effects,**" "**property,**" "**contents,**" "**household goods,**" **etc.**

"**Live Stock.**" Specify whether horses, cattle or sheep.

"**Goods,**" "**Wares,**" **etc.** "Merchandise" is a preferable term to either 'goods' or 'wares,' as it implies property *kept for sale.* "Property which is purchased and taken out of the market to be applied to the ultimate use for which it is intended, ceases to be 'merchandise.' Thus, a gentleman's wearing apparel, the furniture of his house, his coach and horses, and the wines and liquors for use in his family, are not 'merchandise.'"

"Articles." When this term is insisted upon by the assured, it should be qualified by the addition of such words as "*kept for sale*," or "*of merchandise*," to prevent claim being made on show-cases, office or store furniture, fixtures, etc., all of which might be claimed to be "articles," and which should be specifically insured.

Avoid abbreviations, such as "Do." or "Ditto," "etc.," "&c.," "et al.," and others. According to Lord Coke, "&c." means "whatever else ought to have been expressed." We have no objection to insure "whatever else ought to have been expressed," but *we desire to have it expressed*, that we may know whether it ought to be insured.

A policy should never be worded as follows, for example, on a "Saw Mill," a "Flour Mill," a "Starch Factory," etc., but should be written—"on the brick, metal roof building *privileged to be occupied as a saw mill*,"—(flour mill, or starch factory, as the case may be). It has been claimed that a policy on a "saw mill" covers not only the building, but the saws, engine, boilers, machinery, and, in fact, *everything necessary to make it a "saw mill," complete in all its parts.*

Do not make too many endorsements on a policy. It is best to write a new one when it becomes filled up with too many endorsements. Clean contracts are desirable.

Do not renew a policy which has been materially altered in any important particular, as of amount, name, location, etc., by renewal receipt. It is best to write a new policy, and, in this connection, it may be well to state that in reporting a new policy so written, in place of an old one, the fact that it is renewed by a *new policy* and not by a "renewal receipt," should be stated in the daily report and in the monthly account.

Never issue a Renewal Receipt which alters the original contract in any important respect, especially in amount. Renewal receipts are not explicit enough in their form, as will be apparent to any one upon an examination of them, to warrant their being used to alter any material terms of the original contract, *especially if such alteration is in favor of the Company, as in a reduction of the amount of its liability.* A renewal receipt may require extrinsic, collateral evidence to prove it, while a policy proves itself.

Endorsements should never be made upon a Renewal Receipt, but, in all cases, upon the Policy itself. All endorsements, transfers and assignments should be reported on the day they are made, on the small blanks furnished for the purpose.

The policy on a building should always limit the hazard of occupation, by clearly stating it. Such words as "*privileged to be occupied as a private dwelling,*" or, "*privileged to be occupied as a grain warehouse,*" protect the Company against the consequences of a change of occupation.

It is desirable that definite language should be used. The words, "privileged to be occupied as a 'store,'" or "for mercantile purposes," or "for a store-house," are not sufficiently definite—*the particular kind of* "store," "ware-house," or "store-house," and the nature of the "mercantile purposes," should be stated. The sale of fire-works, gunpowder, or other dangerous substances, might be claimed to be an occupation for "mercantile purposes." The phrase "privileged to be occupied for purposes *not specially hazardous,*" though frequently used and less objectionable than many others, is still not so desirable as a particular and plain description of what the occupancy really is. Where the occupations of a building cannot all be given, the phrase "privileged for hazardous and extra hazardous occupation" may be used, as these indicate clearly defined classes, and are preferable to the indefinite phrase "not specially hazardous."

In policies on special hazards, the words "privileged to be occupied for *specially hazardous* purposes" are not sufficiently definite to limit the occupation—*the particular kind of special hazard* must be specified. The term "special hazard" covers a very large class of dangerous occupations.

Do not issue a policy for a premium less than $1.50. A smaller premium does not pay for the use of blanks, trouble of recording, etc. Where the amount is so small that the computed premium, at the rate for the class, amounts to less than $1.50, the agent should charge that amount for it or decline the risk.

Useful and Ornamental. Avoid this phrase in policies on household furniture. Where it is insisted on by the applicant, endeavor to have a specific amount on "ornamental furniture," and if pictures or statuary are specifically insured, the words "*other than pictures and statuary*" should be inserted after the words "useful and ornamental."

Decline to write term policies on mercantile risks. The only risks which should be written for a longer term than a year, are dwellings and farm property. It is sometimes advisable, however, to modify the rule in favor of *churches, school-houses, colleges, court-houses, engine-houses*, and other public buildings *which are not subject to changes of occupation.* All other risks should come up, each year, for consideration and inspection, and it may be suggested, also, to the assured *that his* *companies should come before him, each year, for consideration.* The rates current in some localities, for term policies, of two annual premiums for three-year policies, and of three annual premiums for five-year policies, are not adequate. They should be 2½ and 3½ annual premiums respectively.

Application and Survey. The policy should close with a reference to the application and survey, which should be signed by the applicant, using the following form, "*Reference being had to the application and survey of the assured, numbered...., on file in the office of the Company, which is the basis of this insurance, and which is hereby made a warranty on the part of the assured.*"

The application should, in all cases, be *signed by the applicant* and *never by the agent*, and it is desirable, also, that the answers to questions should be filled in by the applicant himself. Where the agent performs this task for him, *he is the agent of the applicant for that purpose.*

Gunpowder, Kerosene, Night-work in Mills, Lightning, Fire-works, etc. (For forms, see index.)

REPORTS TO COMPANY.

Daily Reports, Surveys, etc. Let all daily reports be full, with every question answered. When a letter of explanation will place the Company in possession of valuable collateral information and facilitate its consideration of the risk, it should be forwarded—otherwise do not write on a separate sheet. Daily reports are intended to be self-explanatory.

Be particular to answer the questions as to the amount of insurance permitted in other companies, and as to *whether it is concurrent;* the amount of other policies by the Company in or on buildings exposed by the risk, and, therefore, liable to burn by the same fire; the value of the property; the length of time the applicant has resided at the agency, and the number of years the agent has known him.

In case the applicant is a "new comer," *be particular to inquire as to his antecedents, and report the facts to the Company.*

In reporting endorsements, transfers, assignments, etc., the same care and dispatch should be observed as in reporting policies. Where assignments are made by filling out the printed forms on the backs of policies, *it is not necessary to copy the printed matter of the form*, it being sufficient to report, as follows, for example, "*policy assigned to John Doe, purchaser.*" In all cases, the agent should state the INTEREST OF ASSIGNEES, whether as purchasers, mortgagees, or otherwise.

In short, the agent should make an intelligent report of the risk, noticing and explaining such points as will be likely to excite inquiry on the part of an examining officer. A brief explanation in pencil on a daily report as to a point of interest will, sometimes, save both Company and agent the necessity of correspondence.

In reporting *renewals* the same care should be observed as in reporting new policies, and where any change has taken place in the risk or its exposures, a diagram should be sent. When a policy is renewed by a new policy, instead of by a renewal receipt, *the fact should be stated in the daily report.*

The agent should refer to the insurance map, on all daily reports, and when the risk is not on the map, he should *state the fact*. and make a diagram showing the risk and all buildings exposing it, the widths and names of streets and numbers of buildings. In the absence of such references, lot and block numbers should be given. (See *ante*, page 114.)

All daily reports must be forwarded on the day a risk is made binding, or, in case they cannot be sent on the very day, a short letter should be sent, giving the principal particulars of the risk, such as amount, location, etc. It would be embarassing, both to the Company and the agent, to have a fire occur before the Company had been notified of its responsibility. Such neglect would be inexcusable. The records of the Company and of its agent should correspond, as nearly as may be, with each other.

All surveys and applications should be signed by the applicant *and never by the agent.*

It is not necessary in reporting policies or renewals to copy any of the *printed matter.* Copies only of the *written portion* should be forwarded, and only the written portion copied in the register.

Insurance Map or Diagram. Where an insurance map is furnished by the Company, the number of the building, as before stated, should be noted on the daily report; this will save the examiners in the office of the Company much time and trouble in locating the risk. The agent should also be careful to note, *in pencil,* on his duplicate copy of the map, opposite a building insured or containing insured property, the particulars of the policy—number, amount, and date of expiration.

In this way he will be able to decide intelligently and accurately as to questions of line, and will not be likely to accept too large an amount in any one block. In case the map needs correction, in any respect—whether in consequence of errors of the surveyor, or by reason of the erection of new buildings or the destruction of others by fire—any pains taken to correct it, by forwarding a small diagram (drawn on the same scale as the map, *i. e.*, 50 feet to the inch), which can be pasted in the proper place, will be appreciated by the Company.

In the absence of any map, the agent will find the transaction of business greatly facilitated *by making and forwarding a connected diagram of the compact, business part of his town.*

By numbering the buildings and retaining a duplicate copy (for making which, the transparent DIAGRAM PAPER FURNISHED BY THE COMPANY will be found to be very convenient), it will only be necessary in reporting risks, thereafter, to refer to the number of the buildings on the map, *instead of making a diagram on each daily report.*

The map need not be drawn to any particular scale, (care being, of course, taken to show the *relative* size of buildings), if the distances between buildings and other measurements, be inserted in figures, but should not be on a smaller scale than 50 feet to one inch, which allows ½ inch of space to a 25 foot front, and is a very convenient one ; and the buildings need not be colored in water color, it being only necessary to draw brick, stone or iron outlines in *red* ink and frames in *black.*

Care should be taken to show fire-walls extending *through and above the roof*, (a very important feature), wooden cornices, openings in side or division walls, (and especially in walls on *exposed sides*), communications with adjoining buildings, material of roofs, etc. (See key to symbols and sample diagram.)

The relative heights of buildings may be shown by figures in brackets, the height of each being marked in feet. A building exposed by one of brick or stone adjoining it, but *of greater height*, is as effectually protected as b a wall extending through and above the roof (see *ant* page 32), and pains should be taken to show such an important feature of a risk. The fact might decide th Company to accept a risk which it would, otherwise, suppose too seriously exposed.

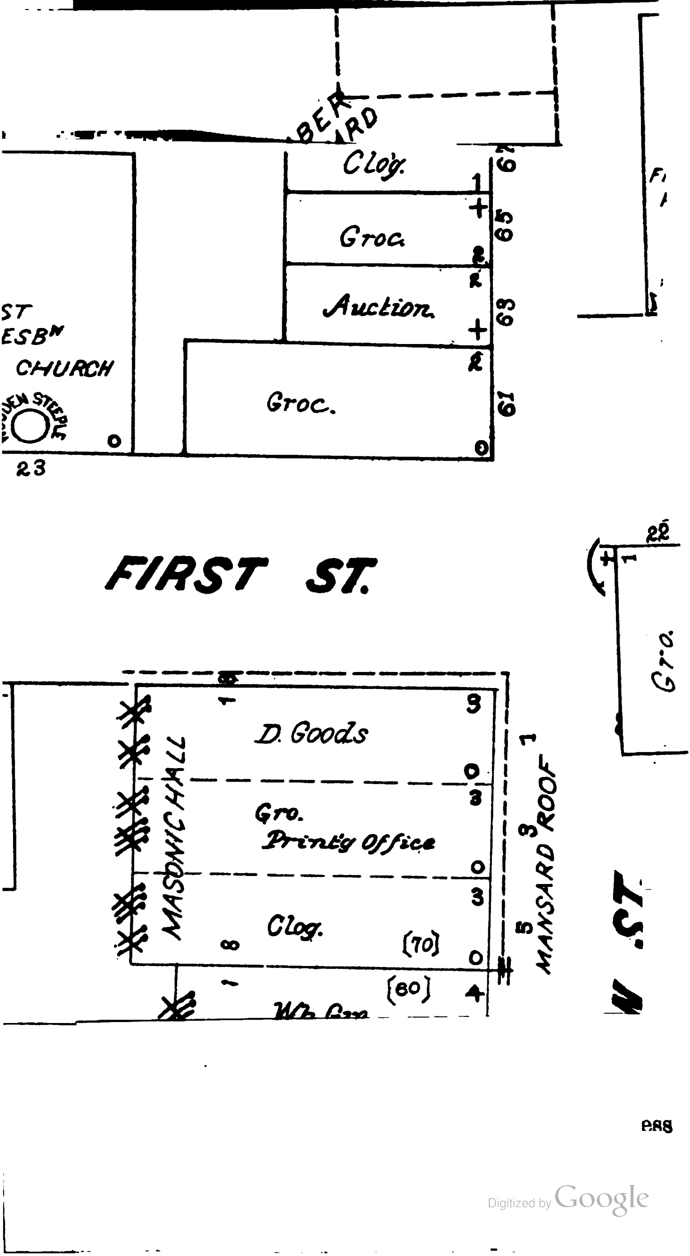
See the diagram for the manner of showing the relativ heights of buildings in blocks.

Where there are windows in that portion of the wal of a building above the roof of one adjoining it, the should be shown in the manner indicated.

Be particular, in all cases, to give *names* and *widths o streets* in diagrams, and unless a street is at least 100 fee wide, the agent should show the buildings on the opposit side from that on which a risk is situated.

The diagrams furnished by an agent on daily reports in reporting the risks taken by him in the first thre months of his work, would, if pasted together as one connected diagram, frequently make a very fair insuranc map of the compact part of his town, and save him muc trouble in reporting subsequent risks.

Explanation of Diagram. For example, the omnibu building, Nos. 1, 3 and 5 Main street, as shown on the diagram, has a mansard roof and a wooden cornice (shown by the broken line in front of the building), and is three stories high. No. 2 Main street represents a four story, metal roof, brick building, occupied for a dry goods store and photograph gallery, the skylight being shown (see key). A communication between No. 2 and No. 4 is protected by an iron door and the walls of the building rise three feet above the roof. The figures in brackets [60] show that the building is sixty feet high and—as No. 4 adjoining is seventy feet high—the wall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between the two is—so far as No. 2 is concerned—an effectual fire-wall (provided the iron door proves reliable). (See page 32). The windows in the rear wall, on 1st and 3d floors, exposed by the planing mill, are protected with iron shutters, and the wall between Nos. 2 and 4, is 18 inches thick (shown by numerals on the line of the wall).

No. 28 First Street shows a frame planing mill, with a brick boiler-house. The line of furnace feed, however, is in a direct line with the door to the mill (an important and objectionable feature, see under head of "Planing Mills,") and a "back draught" would inevitably empty the contents of the furnaces into the mill. There should either be no opening in the wall between the boiler-house and the mill, or the doors to the furnaces should open at right angles to the mill, or, better still, in an opposite direction from the communication.

The height of lumber piles is also shown, an important point. (See under head of "Lumber Yards.")

The agent will notice, in the case of No. 10 Main street, that the iron shutter to the window in the south wall is a valuable protection, in view of the frame row on that side.

CORRESPONDENCE.

Be prompt in replying to all letters of the Company. The accumulation of open matters, in consequence of unanswered letters, especially in the case of a large company, doing business with hundreds of agents, is almost overwhelming, and seriously embarrasses an intelligent management of the business. Daily reports, applications, etc., are often held for such replies, until the examining officer, in consequence of the lapse of time and the press of routine work, has grown unfamiliar with the matter, and upon receipt of a delayed letter, has much of his work to go over again.

Where several hundred letters are sent off each day, the accumulation, even of a week, becomes a serious matter.

Be careful to note the references to pages of copy-books showing copies of the letters, when replying to them. It will save much trouble and loss of time.

Do not write about several different matters on one sheet. In all well-regulated offices, each letter is filed in its appropriate place. One relating to an account, for instance, with the account department; another describing a risk, with the daily report. Letters have to be read, also, by those having charge of the particular matters to which they refer, and the business of a large office is greatly facilitated if such matters are treated of on separate sheets, which can then be distributed to the proper persons.

It may be well to add, also, that where several different matters are written about on one sheet, copies have to be made for filing; this necessitates trouble and loss of time which will more than balance the extra expense of letter paper saved in using one sheet.

CANCELATION.

The right to cancel a policy, at any time they may so elect, is one reserved by companies in the printed conditions of their policies. In reserving this right—so necessary to protect themselves—most companies accord the same privilege to the assured, as a matter of courtesy, upon the condition, however, that where the cancelation is at the request of the assured, it shall be made at the customary short rates of premium for the time the policy has run, as, otherwise, a party might evade the proper charges for short risks by taking a policy for a year and canceling, *pro rata*, when no longer needed.

When the Company requests cancelation of any policy even though the reason may not be apparent or sufficient in the opinion of the agent, he should act promptly, forwarding the policy, if possible, by return mail. A company may have ample reason which it does not wish to communicate, or information not within reach of the agent. By any unwarranted neglect, in such cases, an agent would place himself in a position of responsibility to the Company, if a loss should occur. Requests to cancel policies are never made unless for good and sufficient reasons, and never without careful consideration of all the circumstances, not forgetting the inconvenience and embarrassment which such requests may cause an agent.

It is unfortunate that the ignorance of some companies, as to the cost of carrying certain classes of hazards should result in a reduction of rates on them to an unsafe figure. No alternative remains to a conservative and intelligent company, in such cases, but to decline the risks and wait patiently until competitors have learned the cost of insuring them, or until property-holders have learned that the policies of low rate companies are not the cheapest in the broad view of a true economy. To do otherwise than decline business at inadequate rates would be to inconsistently ignore the lessons of the past, and experience which is not profited by, has been aptly compared to the stern lamps of a vessel which shed light only upon the track over which it has passed.

It, sometimes, happens that, after taking a risk, the agent, himself, discovers evidence of moral hazard, or of serious increase of the physical hazard, not contemplated in the original contract. In such a case, a faithful agent will not wait for instructions from the Company, but will cancel the policy at once. *A company always appreciates such care of its interests.*

After a *suspicious partial loss*, for instance, he should not even wait to have the loss adjusted before relieving the Company of any further liability under its policy. It sometimes happens that an unprincipled party who fails in his first attempt to burn property, *has learned enough thereby to succeed in a second.*

When the holder of a policy objects to cancelation, and refuses to surrender the policy, *a tender of the unearned premium* at the *pro rata* rate, for the unexpired time, in *legal currency* and *in the presence of one or more competent witnesses*, is sufficient. Care should be taken to tender the *correct amount*, and *the tender should be without any conditions, such as the signing of a receipt even.* When a signed receipt can be procured, it is, of course, desirable, and, in that case, should be written on the policy itself,* but it must be remembered that a receipt is merely an act of courtesy, not required by law, and *the legal effect of a tender is impaired where it is made a condition.*

It should be remembered, also, that *a check* or *national bank* notes *are not legal tenders, if objected to, by the assured, on that ground.*

It may be well to serve a written notice as well, that the Company is no longer liable under the policy, in accordance with its own terms. (See clause 6 of the printed conditions of the policy).

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* As follows: "Troy, N. Y., May 2, 1877. Received of the Continental Insurance Company of New York................Dollars, return premium, in consideration of which this policy is, hereby, canceled in full and surrendered to said Company." ....Assured.

The following is a convenient form for such a notice :

Logansport, Ind., January 2, 1877.

Mr. Richard Roe,

Sir :— You will please take notice that the Continental Insurance Company of New York, desires to terminate the insurance of your property, by policy No. . . ., renewal No. . . ., in accordance with its terms, and I hereby tender you the unearned or return premium for the unexpired term of said policy, the Company not being responsible for any loss or damage which may occur after this date.

Respectfully,

. . . . *Agent.*

If no premium has been paid, the following form of notice should be served :

Logansport, Ind., January 1, 1877.

Sir :— You will please take notice that the premium of policy No. . . ., issued by the Continental Insurance Company of New York, has not been paid, and said policy is null and void by its terms, the Company not being liable for any damage by fire which may occur to the property.

Respectfully,

John Doe, Agent.

To Mr. Richard Roe.

If the policy is surrendered, write "canceled" across its face and *across the entry in the register*, and forward it to the Company at once. It should not be held for the next monthly account, if canceled at the request of the Company.

Where a policy is canceled *at the request of the assured,* no return premium is due if it has less than a month to run.

PREMIUMS PER $100 FOR PERIODS SHORT OF ONE YEAR.

ANNUAL RATE.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	$ cts	$ cts	$ cts	$ cts	$ cts	$ cts	$ cts	$ cts	$ cts	$ cts	$ cts	$ cts	$ cts	$ cts	$ cts
	25	30	35	40	45	50	55	60	65	70	75	80	85	90	1 00	1 10	1 25	1 50	1 75	2 00	2 25	2 50	2 75	3 00	3 25	3 50	3 75	4 00	5 00
1 Month or less..	5	6	7	8	9	10	11	12	13	14	15	16	17	18	20	22	25	30	35	40	45	50	55	60	65	70	75	80	1 00
2 Months........	7	9	11	12	14	15	17	18	20	21	23	24	26	27	30	33	38	45	53	60	68	75	83	90	98	1 05	1 13	1 20	1 50
3 Months........	10	12	14	16	18	20	22	24	26	28	30	32	34	36	40	44	50	60	70	80	90	1 00	1 10	1 20	1 30	1 40	1 50	1 60	2 00
4 Months........	12	15	18	20	23	25	28	30	33	35	38	40	43	45	50	55	63	75	88	1 00	1 13	1 25	1 38	1 50	1 63	1 75	1 88	2 00	2 50
5 Months........	15	18	21	24	27	30	33	36	39	42	45	48	51	54	60	66	75	90	1 05	1 20	1 35	1 50	1 65	1 80	1 95	2 10	2 25	2 40	3 00
6 Months........	17	21	25	28	32	35	39	42	46	49	53	56	60	63	70	77	88	1 05	1 23	1 40	1 58	1 75	1 93	2 10	2 28	2 45	2 63	2 80	3 50
7 Months........	19	23	26	30	34	38	41	45	49	53	56	60	64	68	75	83	94	1 13	1 31	1 50	1 69	1 88	2 06	2 25	2 44	2 63	2 81	3 00	3 75
8 Months........	21	24	28	32	36	40	44	48	52	56	60	64	68	72	80	88	1 00	1 20	1 40	1 60	1 80	2 00	2 20	2 40	2 60	2 80	3 00	3 20	4 00
9 Months........	22	26	30	34	38	43	47	51	55	60	64	68	73	77	85	94	1 06	1 28	1 49	1 70	1 91	2 13	2 34	2 55	2 76	2 98	3 19	3 40	4 25
10 Months.......	23	27	32	36	41	45	50	54	59	63	68	72	77	81	90	99	1 13	1 35	1 58	1 80	2 03	2 25	2 48	2 70	2 93	3 15	3 38	3 60	4 50
11 Months......	24	29	53	38	43	48	52	57	62	67	71	76	81	86	95	1 05	1 19	1 43	1 66	1 90	2 14	2 38	2 61	2 85	3 09	3 33	3 56	3 80	4 75

NOTE.—The upper row of figures shows the rates for a year, for from 25 cents to 500 cents, (or 5 per cent.,) and the rows of figures below them show the prices under each, from 1 to 11 months.

TABLE OF SHORT RATES FOR PERIODS LESS THAN ONE MONTH,

FOR INSURANCE OF COTTON, WOOL, GRAIN, PORK, OR OTHER PRODUCE.

Notice of which must be given to the Company on the day on which the risk is accepted.

Annual Rate.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	Cts.	$ Cts.	$ Cts.	$ Cts.	$ Cts.	$ Cts.	$ Cts.	$ Cts.	$ Cts.	$ Cts.	$ Cts.	$ Cts.	$ Cts.	$ Cts.	$ Cts.	$ Cts.
	25	30	35	40	45	50	55	60	65	70	75	80	85	90	1 00	1 10	1 25	1 50	1 75	2 00	2 25	2 50	2 75	3 00	3 25	3 50	3 75	4 00	5 00
2 days or less.......	1	1	1	1	2	2	2	2	2	2	3	3	3	3	3	4	4	5	6	7	8	8	9	10	11	12	13	13	17
5 days..............	2	2	2	3	3	3	4	4	4	5	5	5	6	6	7	7	8	10	12	13	15	17	18	20	22	23	25	27	33
10 days............	3	3	4	4	5	5	6	6	7	7	8	8	9	9	10	11	13	15	18	20	23	25	28	30	33	35	38	40	50
15 days............	4	4	5	5	6	7	7	8	9	9	10	11	11	12	13	15	17	20	23	27	30	33	37	40	43	47	50	53	67
20 days............	5	5	6	7	8	8	9	10	11	12	13	13	14	15	17	18	21	25	29	33	38	42	45	50	54	58	63	67	83

TABLE FOR CANCELING TERM POLICIES.

Example.—A Policy issued for $5,000, at 3 per cent., for 5 years, (Premium $150), is canceled after running 29 months. In the column headed "Term of 5 Years," we find 68 opposite 29 months, which is the *per centage of premium earned* in that time; 68 per cent. of $150=$102. The difference ($48) is, of course, the amount to be returned to the assured.

	TERM.					TERM.			
	Per Centage.						Per Centage.		
Months Expir'd	1 Year.	2 Years.	3 Years.	4 Years.	5 Years.	Months Expir'd	3 Years.	4 Years.	5 Years.
1	20	13	10	8	7½	31	91½	79	71
2	30	20	17	13	11½	32	93	80	72
3	40	25	20	18	15½	33	95	81	73
4	50	30	23½	20	18	34	96½	82½	74
5	60	35	27	22½	20	35	98	84	75
6	70	40	30	25	22	36	100	85	76
7	78	45	33½	27½	24	37		86	77
8	84	50	37	30	26	38		87½	78
9	88	55	40	33½	28	39		89	79
10	92	60	43½	35	30	40		90	80
11	96	65	47	37½	32	41		91	81
12	100	70	50	40	34	42		92½	82
13		72½	53¼	42½	36	43		94	83
14		75	57	45	38	44		95	84
15		77½	60	47½	40	45		96	85
16		80	63½	50	42	46		97½	86
17		82½	67	52½	44	47		99	87
18		85	70	55	46	48		100	88
19		87½	72	57½	48	49			89
20		90	73½	60	50	50			90
21		92½	75	62½	52	51			91
22		95	77½	65	54	52			92
23		97½	79	67½	56	53			93
24		100	80	70	58	54			94
25			82½	71	60	55			95
26			83	72½	62	56			96
27			85	74	64	57			97
28			86½	75	66	58			98
29			88	76	68	59			99
30			90	77½	70	60			100

A TABLE,

Showing the number of days, from any day in one month to the **same day** in any other month, throughout the year.

MONTHS.	JAN.	FEB.	MAR.	APR.	MAY.	JUNE.	JULY.	AUG.	SEPT.	OCT.	NOV.	DEC.
January	365	31	59	90	120	151	181	212	243	273	304	334
February	334	365	28	59	89	120	150	181	212	242	273	303
March,	306	337	365	31	61	92	122	153	184	214	245	275
April	275	306	334	365	30	61	91	122	153	183	214	244
May	245	276	304	335	365	31	61	92	123	153	184	214
June	214	245	273	304	334	365	30	61	92	122	153	183
July	184	215	243	274	304	335	365	31	62	92	123	153
August	153	184	212	243	273	304	334	365	31	61	92	122
September	122	153	181	212	242	273	303	334	365	30	61	91
October	92	123	151	182	212	243	273	304	335	365	31	61
November	61	92	120	151	181	212	242	273	304	334	365	30
December	31	62	90	121	151	182	212	243	274	304	335	365

Look for April at the left hand, and September at the top; in the angle is 153, which is the number of days intervening between any given day in April and the *same day* in September.

For example; it is desired to know on what day a policy, written for ninety days from the 4th of April, will expire. In the line opposite the month of April, in the left hand column, will be found the nearest number to 90, viz., 91, under July; therefore, from the 4th of April to the *same day* in July, the 4th, would be 91 days, and 90 days would expire on the 3d.

MONTHLY ACCOUNT.

This important account should be made up and forwarded to the Company by the 25*th of each month*, with a draft on New York, *payable to the order of the Company*, to balance. Do not remit by a check on a local bank, nor by a postal order, (unless the amount is less than fifty dollars, or unless banking facilities are not convenient.)

All remittances by bank bills or currency in letters, must be at the risk of the agent. Bills may be sent by express, however, when banking facilities or postal orders are not procurable.

The monthly account should give each policy and renewal receipt, with its number, amount, rate, etc., issued since the last account forwarded—the design being to have the monthly accounts of an agency show *a consecutive list of all the policies and renewals issued.* For this reason, where a policy or renewal is canceled because "*not taken*," or "*by order of the Company*," or for any other reason, the fact should be written opposite the number on the monthly account. Under no circumstances must a number be skipped or omitted.

In case no business is done during the month, the agent should report the fact, *by postal card*, to the Company. This will save them the trouble of writing for the monthly account.

Vouchers should be forwarded for every amount paid out, except postage. Do not contract any bills for *advertising*, without special permission first obtained from the Company. The Company furnishes calendars, blotters, circulars, etc., and prefers their judicious distribution, among property-holders, personally, by energetic agents, to any general advertisements in newspapers. Where advertising is authorized by the Company, the agent should not place the name of the Company third or fourth in a list arranged according to *assets.* Such wholesale advertisements are of little value. It is, moreover, not always the company that advertises the largest array of figures which gives *the greatest security.*

Do not waste calendars, blotters and other advertising material on children or other non-productive applicants for them. They cost money and should be made effective.

When it is necessary to pay charges for express, telegrams, etc., received from the Company, *take a receipt for the amount* and forward it to the Company with the monthly account. *All such charges are prepaid by the Company,* and it will thus be enabled to collect any double charge at the main office.

Blank Account. This is a very important one, and every policy or renewal should be accounted for. Where a blank policy or renewal is "spoiled," return it to the Company, with the next monthly account, as a voucher. Send the whole blank—*do not tear off and send the signatures merely.*

On that portion of the monthly account set apart for the purpose, the agent should fill in the statement of policies and renewals on hand at the close of his last report, adding the number of any he may have received from the Company since, and from the sum of these he should deduct the blanks used and spoiled—the remainder should, of course, correspond with the number of perfect blanks on hand, *and should be verified by an actual count of them.*

Never destroy a policy or renewal blank, on account of its having been spoiled, in any way, but, in all cases, *return it to the Company.*

It is to be expected that a reasonable number of blanks may be spoiled at an agency, and allowance will be made where the number is not excessive. All unnecessary waste, however, should be avoided, it being remembered that an unnecessary waste of blanks at each of its many agencies, would amount, in the course of a year, to a serious loss to the Company.

No mistaken considerations of economy, however, should induce an agent to make erasures in a policy for the purpose of saving the blank. It is better to use a new one and have a clear, unmistakable contract.

It is, of course, unnecessary to return any policies *which have expired*, as vouchers.

Return Premiums. When, for any reason, a portion of a premium is returned to the assured, the *agent should credit the Company with the commission on the amount so returned.* This may be the more easily done by deducting from the total amount of premiums for the month, the amount of such return premiums, and *computing the commission on the balance or remainder, instead of on the whole amount;* (see form of blank for monthly report). Thus, suppose the total amount of premiums for the month to be $200, and that $30 have been returned to holders of policies canceled—this amount ($30) deducted from the $200, will leave $170, on which amount the agent computes his commission for the month's business.

The canceled policy and *last renewal receipt* must accompany the report, in each instance of a cancelation, unless forwarded to the Company, at its request, as before stated, and a receipt should be taken on the policy itself, or upon the form of blank furnished by the Company for the purpose, and attached to the policy or renewal receipt.

When a policy is canceled at *pro rata* rates, an explanation should be made upon it, when returned, as to why *short rates* were not obtained. This enables the accountant, at the main office, to audit the account without writing to the agent for an explanation.

Giving Credits for Premiums. The agent should always remit in full, *and not leave any balance to be carried over to the next report.* This should be done even where the agent cannot make collections, or may choose to give short credits, as he will find it much easier to collect the amount for *himself* than for the Company. Some policy-holders are apt to think that the Company "can afford to wait," and, sometimes, do not hesitate—after keeping a policy thirty or forty days—to return it as "not wanted." They are less likely to act so dishonorably when an agent is in a position to say *he has advanced the premium to the Company and needs it.*

Credits should never be incidents of the insurance business, which can be safely conducted only on a cash basis. While no honorable man would ignore a debt for a policy which has expired, simply because he no longer needs the security it affords him, there are enough individuals in every town, who would not hesitate to shirk out of paying for an expired policy, to cause a company, permitting credits generally, a serious loss in the aggregate of its numerous agencies.

It may, sometimes, be necessary and desirable to accommodate a reliable customer for a short period—say thirty days—but, as before stated, the agent will find it to his interest, every way, to do so out of his own funds.

No such customer would be likely to appreciate an accommodation made by an agent *at the expense of the Company.*

It is the rule of all companies making any claims to a systematic management of their affairs, to require prompt remittances, at the close of each month, and especially at the close of the months of June and December—at which periods, particularly, collections should be made and remittances forwarded for all balances due. Where agents are disposed to feel annoyed at the receipt of reminders from the Company, at such times, it will be well for them to consider, for a moment, what an important item of assets to omit from the published statement of a company, would be the aggregate amount of premiums in the hands of two thousand agents, though each agent owed the company no more than $100; and, on the other hand, how inconvenient and questionable an item would be such an amount to place in a report to the Insurance Department. As companies are obliged to report the entire amount of their *liabilities for insurance,* they should be in a position to report a *satisfactory amount of assets to offset them.*

An average balance of $250, due for uncollected premiums, at each of such a number of agencies, would result in an uncollected balance of *half a million of dollars,* the collection of, at least, a portion of which—by the rule of all running accounts—would be a matter of doubt, and the loss of interest on the amount, at seven per cent., *thirty-five thousand dollars per annum*—a matter of certain and serious consequence.

Under no circumstances will an honest agent use the funds of his company, temporarily in his hands, for the purposes of his business, or subject them to the uncertain-

ties of speculation. He stands in a fiduciary relation to his company, and his debt is one of honor. He is the trustee of the company, and the money held by him cannot be regarded as, in any way, partaking of the nature of an ordinary business indebtedness. He has no more right to use the money of the Company collected by him *than has the cashier of the Company to use the funds in its office for his personal accommodation.*

It is for this reason that the laws of most states regard and punish the conversion of such trust funds as a criminal offence.

The only safe and honorable rule for an agent to follow, is to separate and use his commission on each premium, *when he has collected it, and not before.* He should never anticipate expected but unearned or uncollected commissions, out of any funds of the Company in his hands.

Statistics of Fires at the Agency during the Month. The agent should be careful to report, with his monthly account, any fires occurring at his agency, during the month, *whether the Company loses by them or not.* It is desirable to have full and reliable statistics of the causes of fires, and the Company will appreciate any trouble taken by its agents in this direction. All important particulars should be given. *Date, cause, amount of loss, amount of insurance, name of assured and class of risk.*

Risks dropped, Policies not renewed, etc. The agent should be particular to explain the loss of any risks of the previous year and the consequent falling off in receipts. A brief explanation with the monthly account may save the Company and agent the trouble of correspondence on the subject.

HOW TO PROCEED IN CASE OF FIRE.

The agent should always consider it a part of his duty to attend every fire at his agency ; not only will he, in this way, gain valuable practical knowledge which will enable him to judge of the hazard of risks and exposures, but, if he is a man of intelligence and judgment, his presence and direction will, undoubtedly, be of value to his companies in the saving of property which might, otherwise, be destroyed or stolen. He will learn, also, wholesome lessons of prudence, and become more conservative and careful of his company's interest. Seeing how easily the entire receipts of an agency for years, may be consumed in a few moments, he will not be inclined to accept responsibilities for his principal for excessive amounts or inadequate rates.

Where an organized fire department exists, the agent's duties will probably be confined to the protection of property from damage by injudicious removal. The chief-engineer or superintendent of fire brigade, as before stated, should have the whole direction of a fire, and, while he may make mistakes, it is generally best that he should not be troubled with the advice of others. It is very desirable that the entire force of firemen should be under the control of one man, and the efforts of citizens should be directed rather to his removal, if inefficient, than to the confusion attendant upon a multitude of opinions, advanced at a time when only one can be followed.

Where there is no fire-department, or before its arrival on the ground, the agent may render valuable service. The example and direction of a single cool and collected person, at such a time, is invaluable. At the commencement of a fire *a bucket of water, properly applied, may be* *worth more than a steam fire engine, a few moments later.*

Do not wait for engines to come up, or disdain the simple appliances at hand. A bucket of water, an axe with which to gain access to a concealed fire, and a proper attention to the drafts and currents of air, which should be cut off, if possible, may hold the fire in check, if not extinguish it. All loud cries, unnecessary noises or excited gesticulation, tend to confusion and should be avoided. Cool, quiet, and *persistent* effort is indispensable, keeping in mind that the work of extinguishing the fire may be one of hours and not of minutes, and that strength and endurance should not be exhausted in spasmodic efforts at the start, but be husbanded for what may prove a protracted and laborious task.

It is of the utmost consequence to shut, and keep closed, all doors, windows, and other openings which might, otherwise, add to the draft. The person taking the lead should, by proceeding on hands and knees to avoid the smoke, endeavor to get as near as possible to the fire, "which may often be seen burning brightly in the clear space of air near the floor, when the upper part of the room is filled with smoke." He should apply the water passed to him *so that it will strike the burning materials.* This is very important, whether the water be applied by hose from an engine or by pails. *It must strike the fire itself.*

If there is any delay in passing the water to him, and he cannot be kept supplied with pails full, he should use a cup or dipper to throw the water, so as to make every drop effective. So careful should he be to prevent any draft of air, that he should close the door of the room, in case he has to wait for water.

A remarkable fire which occurred at Marshall, Mich., June 7th, 1875, in the drug store of Messrs. Smiley & Henderson, may be mentioned as an example of the importance of cutting off the supply of air. Spontaneous ignition took place in some fine planing mill chips which had been saturated with the drippings of linseed oil. The box containing this dangerous mixture was carelessly left on the head of a barrel containing linseed oil. The fire resulting actually charred the barrels standing near, one of which contained wine and another whiskey, and was sufficiently hot to *blister a barrel containing turpentine*, but, having exhausted the oxygen of the appartment, *it went out for want of air*. The room, though filled with the most combustible materials, was, fortunately, a close one, there being no openings or broken panes of glass to supply the wanting element.

Where water cannot be procured, moist earth, mud or sand may, sometimes, be successfully used. Indeed, it is claimed that sand is better than water for extinguishing kerosene or other oil fires.

Where a steam jet is provided in the room in which the fire is burning, the valve should be opened, *after securely closing all the windows and doors*. If the room can be effectually closed, it will soon extinguish the fire.

If a steam jet is not provided and the room is heated by steam, or has steam-pipes passing through it, they may be broken with a heavy wrench or axe, so as to permit the steam to escape.

It is unnecessary to add that if fire-extinguishers are at hand, they should be used as soon as possible.

A building exposed to a burning one may, sometimes, be saved by covering the roof and exposed sides with carpets, blankets, or other woolen material, which should be kept wet by persons stationed on the roof or at windows in the upper stories with pails of water and dippers.

When it seems certain that a building cannot be saved, *and not before,* efforts should be made to save such of the contents as can be removed. It is at this stage of the fire that the utmost coolness and intelligence should prevail. The *most valuable* and portable property should be first carried out to a safe place and *guarded from thieves,* who, if permitted to profit by a fire, may be tempted to become incendiaries to secure subsequent opportunities. Such merchandise as dry goods or cutlery should be removed in preference to crockery. The latter is liable to be broken even if carried out, and does not damage so easily, by water or smoke, as the former.

Furniture, mirrors and pianos which cannot be removed without being broken in pieces and destroyed, *had better be left to burn,* that the moral effect of their wilful and unnecessary destruction may be avoided. As a rule, little, if anything, is ever saved by throwing articles out of windows, unless they are of a nature not to be easily damaged by a fall; such, for instance, as mattresses or other bedding, wearing apparel, etc.

In case a barn or stable is on fire, the horses and cattle should be at once removed. The building is, frequently, even as a question of value, of less importance. In removing animals care should be taken to do so, as nearly as possible, in the ordinary manner, without excitement, or unnecessary noise, which might frighten them. If they become restive they should be blindfolded with a coat, empty grain bag, or other cloth, care being taken to keep the eyes thoroughly covered until they are safely removed to some secure place, *where they cannot see the fire.* Animals will, sometimes, rush into a burning building, if not prevented, *especially if it be the one in which* *they have been fed or sheltered*—not because they love to rush into fire, as is erroneously supposed, but because they become frightened.

Merchandise on the lower floors may often be saved from serious water damage by covering counters, tables, and shelves with tarpaulins or canvas. The covers should extend well over the tops of shelves, in such cases.

Chimney Fires may be almost instantly extinguished by throwing salt on the fire. The process of burning the salt evolves muriatic acid gas which extinguishes flame.*

Where sulphur is procurable it should be thrown into the fire and the fire-place covered with a metallic fire-board or "blower." Sulphurous oxide resulting from the combustion, will soon fill the chimney, and taking up all the oxygen from the contained air, will extinguish the fire. A fire may be extinguished, in this way, even after it has extended into the wood-work of a building.

Where a person is exposed to the flames or smoke of a burning building, he should breathe through a wet cloth or handkerchief, or the lapel of his coat, previously wetting it for the purpose.

HOW TO PROCEED IN CASE OF LOSS.

If any portion of the property is saved, take immediate steps to have it protected by the assured, from further damage, and then notify the Company, *at its office in New York*,† by letter or telegram, according to circumstances. If the loss is a severe one, a telegram should be sent giving *number of policy*, *probable percentage of*

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* Muriatic acid is a hydric chloride, and as common salt is a sodic chloride, containing, also, more or less moisture by absorption, and, therefore, hydrogen, its combustion would generate hydric chloride, or muriatic acid gas.

† If the loss is under a "Western Department" policy, notify the Superintendent of that department at Chicago, also.

loss, and *names and amounts of other companies on the risk*, that the Company may consult with them as to the action to be taken. The telegram should be immediately followed by a letter, giving all the particulars that can be collected.

Avoid unnecessary words in a telegram, such, for instance, as "*send adjuster*," or "*what shall I do?*" Requests for instructions are unnecessary. It must be obvious, on reflection, to an intelligent agent, that the Company would naturally advise, upon receipt of the information, without being reminded of its duty.

The following form of telegram may be modified to suit cases:

Continental Insurance Company,
102 *Broadway, New York.*

"*Total loss* (or fifty per cent., or otherwise, as the case may be), *twenty-four twenty-two, James Brown; Home, five thousand; Aetna, five; Phenix, Brooklyn, ten.*"

Richard Roe, Agent.

This gives the Company all of the principal facts necessary to enable it to consult, as to the adjustment, with the other companies interested.

Where a greater number of companies are on the risk, they may be grouped according to amounts, to save words and expense, thus: "*Home, Aetna, Hanover, five thousand; Niagara, National, Howard, three; Hartford, Germania, twenty-five hundred.*" This will be important and intelligible information.

When the loss is small and no immediate action is necessary, dispatch a letter, as soon as possible, but do not telegraph. It is more important to telegraph, in case of a *serious partial damage to a stock of merchandise,* than where the loss is on a *building*, as an experienced adjuster, if promptly on the ground, may possibly save a serious damage from rust, mildew, or other cause.

Hardware, and especially cutlery, should be unwrapped, well rubbed off and oiled, as soon as possible. Dry goods, rolls of cloth, clothing, etc., should be opened out to dry to prevent farther loss by heating, stains and mildew. Such goods should never be piled up while damp. Tobacco, stationery, drugs and stoves all need immediate care. The agent, in such cases, should act with decision, and especially if the assured is unprincipled enough to object to such precautions, the agent should notify him that it is his duty, under the contract, to take care of the damaged property, and that the underwriters will not be responsible for the consequence of any neglect on his part. Condition 9 of the policy is as follows:

> "The best endeavors of the assured should be used in saving and protecting the property from damage at and after the fire; and in case of failure so to do, this Company will not be liable for damage caused by such failure."

The agent should have a supervision of the damaged property, but it is best to arrange the matter of caring for it amicably with the assured, convincing him that it is to his interest.

Where the building is insured and is partially damaged, it may be necessary to temporarily close the roof or a broken side wall, with cheap boards, to prevent farther damage by rains. Walls, also, may need propping to prevent their being blown down.

Some persons suppose that they must not touch anything, after a fire, until the underwriters have examined the premises. They should be instructed that *it is their duty always to protect the property from further damage.*

When the circumstances of a partial loss are so suspicious as to indicate incendiarism on the part of the assured, it may be advisable to cancel the policy, (see *ante*, p. 144), or to employ a constant and reliable night watchman, to keep the property under constant surveillance, until the adjustment is consummated and the policy can be taken up, in the regular manner. Those who fail in a first attempt to burn property, *sometimes succeed in a second.*

Collecting the Facts of the Fire. Having taken every precaution to save further loss, the agent should endeavor to ascertain the cause of the fire, if possible; whether originating from design, carelessness, spontaneous combustion, or other causes. He should ascertain whether there were any suspicious circumstances before, or at the time of the fire, and to succeed, it will be necessary to proceed quietly and cautiously. Parties knowing of suspicious facts are generally slow to communicate their knowledge or suspicions. Always try to find the *person who was first upon the ground and ascertain what he saw*, and at what hour of the day or night the fire was first discovered.

Find out whether the building was *occupied or was standing vacant* at the time of the fire, and if vacant, how long it had been so; whether it was a paying investment to the owner and *lessee;* whether it was "for sale," (and if so, for what price), or in litigation; whether mortgaged or about to be; if mortgaged, whether undergoing foreclosure, or whether the mortgage had been called in; whether any threats had been made to burn the property, etc.

If the loss is on merchandise, ascertain whether the stock was full or low, new, or old and shelf-worn;

whether the *books of accounts and papers were saved;* whether any property was stolen, at or after the fire, and if so, how much—giving a detailed statement.

Not a small portion of jewelry stocks is, sometimes, in the *trunks of traveling salesmen,* though included in the inventory of the store; and, in the case of country stores, no inconsiderable portion of the merchandise may be, at the time of the fire, *in the wagons of peddlers* traveling through the country and selling for account of the assured. Make careful investigation as to such important facts, and quietly reserve them for the final settlement.

Ascertain whether the assured was ever burned out before, and if so, *when* and *where; whether insured at the time,* and if so, in what companies.

It is, sometimes, well to examine, also, as to the habits of *book-keepers, clerks or other employees.*

Upon an examination of the premises after a suspicious fire, the *agent should carefully write out an accurate, detailed description of the appearance of the premises.* If a stock of merchandise is partially damaged, he should note the number of shelves totally destroyed, the number partially destroyed, and whether they were full or only partially full of goods; the appearance of counters, whether any goods were piled on them, and to what height; the character of the goods—whether cheap or expensive; the quantity and appearance of the *débris*—some kinds of merchandise leave traces. Axes and hammers are never destroyed, pails leave hoops, etc. He should not trust to his memory.

Under no circumstances should the agent make any alteration in the policy, or consent to any transfer or assignment of it, or to any change whatever, after a loss. He should let everything remain in precisely the same condition as at the time of the fire.

Adjustment of the Loss. *The agent should not proceed with the adjustment of the loss until instructed by the Company, unless the circumstances are such as to make further loss certain, for want of immediate action, as in the case of a damaged roof exposing a building to the weather.* Up to the receipt of such instructions, the agent should employ himself merely in protecting the property, and in gathering all the information he can as to the cause of the fire and particulars of the loss.

Losses on buildings should not be adjusted by appraisement. Estimates should be obtained from two or more responsible builders as to the amount for which each will replace the property *to the satisfaction of the assured.* Blank estimates will be sent by the Company. The amount of the lowest *responsible* estimate may be offered by the Company to the assured, as he may prefer to do the work himself, or may desire alterations in the plans. In case the Company elects to rebuild, however, a contract should be drawn (blanks for which will be furnished by the Company) for the builder to sign, in which he agrees to restore the property to the same condition, in all respects, as it was in before the fire, the Company agreeing to pay him the amount of his bid so soon as the repairs are completed and he produces a certificate from the assured that he is satisfied with the manner in which the repairs have been made.

When the building is totally destroyed, it may be necessary, in case of a disagreement as to its value, to require the owner to produce the original plans and specifications upon which it was constructed, on which estimates may be obtained to rebuild; or to furnish other satisfactory evidence to the Company as to the original cost of the building, unless the loss is manifestly greatly in excess of the insurance.

Do not deal with unprincipled or irresponsible builders, who cannot be relied upon to carry out their proposals to the letter. The estimates of such builders, if entertained, might work great injustice to the assured, *especially if he should elect to receive the amount of a reckless bid instead of having the property restored by the Company.*

When personal or movable property is damaged, the assured must forthwith cause it to be put in order, assorting and arranging the various articles according to their kinds, separating the damaged from the undamaged, and cause an inventory to be made and furnished to the Company of the whole, naming the quantity, quality and cost of each article at the time of the fire, as well as the actual damage each article has sustained by the fire.

In case of the total destruction of movable property, and when it is not possible for the assured to furnish schedules of the whole, a schedule of all that can be ascertained should be given, and such evidence furnished as to the balance of the property as shall be satisfactory.

The damaged property *belongs to the assured, he cannot abandon it.* Abandonment is not a feature of fire-insurance, which is strictly a contract of indemnity only.

Selection of Appraisers. *As before stated, losses on buildings should not be submitted to appraisement.* When an agreement, as to the value of *personal* property, cannot be arrived at, it may be advisable for each party —the assured and the agent—to select a *disinterested, intelligent appraiser,* submitting the question of damage to the two so selected by a *written agreement.* The two appraisers may together choose a third, in case they cannot agree; and the award, in writing, of any two should be binding, *as to the value of the property and the damage.*

Appraisement, however, should be a *last resort*, and not taken (except in the case of property which will damage by delay, as hereinafter explained) *until orders are received from the Company.* It will generally be found that a reasonable, intelligent and honest claimant and a conscientious adjuster can agree, without difficulty, upon a fair settlement. Appraisers sometimes lean unfairly toward the interest of a claimant, and yet *quite often do him great injustice.*

The appraisers *must examine each article*, and state, in detail, the sound, *wholesale cash value* of it at the time of the fire, as well as the actual amount of the damage. As each item is arrived at, it should be entered clearly, in ink, on an inventory prepared with double columns for "sound value" and "amount of damage."

The duties of the appraisers end with their award as to the two items of "sound value" and "damage."

They have nothing, whatever, to do with the liability of the Company, or with such items as the cost of removing property, of watching and caring for it, the amount of profit, loss of time or rents, or disarrangement of business, etc., and they must not bring these matters into their award, either directly or indirectly; nor is an appraisement the proper place for the consideration of such claims as for the value of blankets, carpets or other appliances used in protecting the property.

Appraisers *are not arbitrators.* They are not to say how much the Company is to pay or not to pay, or to treat of or *mention* its liability in any way. They have simply to deal with the *sound value and damage of the* *property before them.* The appraisement and award must be *under oath and in writing.* (For form, see index).

The Company will furnish blanks for appraisal.

The *expenses of appraisal* are to be divided equally between the Company and the assured, *each paying one-half.*

The Company reserves (but seldom avails itself of) the right under its policy to take any or all of the appraised property at its appraised value. This reservation is necessary to enable it to protect itself from a careless, ignorant or intentionally excessive and unjust estimate of damage by the appraisers.

Upon such property as will damage by delay, such as stocks of fruits, confectionary, cutlery, etc., an *appraisal should be immediately had,* delay increases the damage, and the property can be best cared for by the owner, when his is the sole interest. *Agents are, therefore, authorized, in such cases, to insist upon an immediate appraisal,* unless they can agree with the owner as to the amount of damage. By prompt action, in such cases, the responsibility of caring for perishable goods will rest upon the owner, who, by reason of his experience and acquaintance with them, is better qualified to take the steps necessary to prevent subsequent damage. In all other cases, however, the agent should wait for instructions from the Company, before consenting to an appraisal.

Do not close an adjustment or admit any liability, under any circumstances, or consent to the representation of this Company *by the adjuster of another Company, unless instructed to do so.* Upon the arrival of the adjuster of another company, however, *telegraph the fact to the Company,* as follows:

Continental Insurance Company,
102 Broadway, New York.

"*John Jones, Aetna adjuster, here. Shall he act for you?*"

It may happen that the Company, knowing such adjuster, by reputation, to be competent and honorable, may be willing to entrust its interests to his care, and be glad to save the expense of sending its own adjuster.

Where a claimant seems in undue haste to have his loss settled, it may be advisable to wait. *Suspicious losses do not suffer by delay.*

Damage by Removal. Where goods are damaged *by removal,* the loss and expenses of removal are borne by the assured and the insurance companies together, *in proportion as each is interested.* If the insurance companies have insurance upon the property to its full value, they pay the whole cost of removal, but if to the extent of one-half its value, they pay one-half of the damage and the expenses of removal, and the assured pays the other half. This must impress any one as an equitable apportionment. As the removal, in such a case, is made more in the interest of the assured than of the companies, he should bear, at least, an equal share of the expense and damage, for all of the goods saved are his, unless he saves more than the uninsured portion.

Damage by Explosion. Such damage is not a loss within a fire insurance policy and is expressly excepted by its terms, as follows:

"This Company shall not be liable by virtue of this policy, or any renewal thereof, for any loss caused by the explosion of gunpowder, camphene, or any other explosive substance, or explosions of any kind, unless fire ensues, and then for the loss and damage by fire only, which loss shall be determined by the value of the damaged property after the casualty by explosion."—*Condition 2 of Policy.*

Damage by Lightning is not covered by the policy unless expressly mentioned in writing. (For form of clause see index).

When the agent is convinced that there is no fraud on the part of the assured and that his claim is an honest one, he should place himself on an amicable footing with him, *and assist him as much as possible.* Honest claimants should have every facility and assistance afforded them. Assure them, at the outset, that *the Company desires to do them full justice,* to pay—not one dollar more than they have lost—*not one cent less.*

The agent must not forget, however, that scrutiny and investigation are never objectionable to honest claimants; indeed, they generally court the most rigid investigation. We have frequently discovered great errors in the books of account and recollections of honest claimants, who have been most ready to admit these errors when brought to their notice. Blanks for proofs of loss are sent by the Company, to facilitate the collection of losses by honest claimants. Dishonest claimants should be left to prepare their proofs, without any suggestions, assistance or blanks furnished by the agent. Direct the assured, in such cases, to make his proofs in accordance with sections 9 and 10 of the conditions of the policy, in which full and explicit directions are given.

Payment of Losses. Never draw drafts upon the Company for the payment of losses *until authorized by the Company to do so,* and then only on the form of blank draft, with receipt attached, (the draft and receipt must not be separated), forwarded for the purpose by the Company. *The Company always sends blank drafts and instructions.*

It is the experience of the companies generally that those claimants who, immediately after a loss, consult a lawyer and place themselves in his hands, are generally conscious that their claims need external assistance, and such losses should receive the most rigid scrutiny. Under no circumstances should such claims be paid before the expiration of the sixty days from the filing of proofs.

Hasty Payments should be avoided. When a case of unusual hardship would seem to require speedy relief, and the Company, in view of all the circumstances, orders the amount paid, *do not advertise the fact in the newspapers.* Such advertisements are always followed by applications for insurance on the part of an unprincipled class whose patronage we desire to avoid. *They misconstrue the motive of the payment*, and, supposing that the Company is seeking a reputation for so-called "prompt payments," without proper investigation, *they often aid in increasing its opportunities for advertising.*

The practice of making hasty payments of losses is not calculated to commend a company to an intelligent and desirable class of customers.

Discounting Claims before Maturity. In those cases where the justice of the claim is unquestionable and all the circumstances of the fire satisfactory, and the assured desires to use the money, before it is due, for the purposes of his business or to replace the burned property, the Company will allow payment—requiring, of course, a deduction for interest, that it may not lose by disturbing its investments.

Payments in advance of maturity, however, should be made with care. There are many claims which should wait the sixty days.

Those companies who pay losses before the smoke of a fire has blown away, often make discoveries, in a clearer atmosphere, which were not apparent at the time, and find out their mistake when it is too late to remedy it.

When a Loss is paid, cancel the Policy, taking a receipt for the amount of the loss and of the return premium, if any, on the face of the policy. *Do this whether the loss is less than the amount of the policy or not.*

In those cases where it is necessary and desirable to continue the insurance, it should be done *by a new policy.*

THE GOOD FAITH OF INSURANCE CONTRACTS.

No contracts known to the commercial world are so generally lived up to, without quibbling or evasion, as are Insurance policy contracts *on the part of the companies making them.* Owing to the neglect and carelessness of the insured, there are none which might be so easily and frequently avoided, on technical grounds, notwithstanding which they are generally (always, by honorable companies) fulfilled to the very spirit of their terms, whenever fraud is not manifest on the part of the policy-holder.

In ordinary business transactions, if the endorser of a note is not informed of its protest, through the inadvertence or ignorance of the holder, he rarely, if ever, fails to take advantage of a release which the law gives him on merely technical grounds, *notwithstanding that he may not be, in any way, a sufferer by reason of such want of notice and, notwithstanding, that the moral obligation of suretyship remains unimpaired.* Not so with the underwriter. Every month in the year he pays claims, without litigation, which he might avoid on the most clearly settled principles of law—claims for many times the amount of ordinary business transactions, and which, if appealed to the courts, could not be enforced; and yet when, in consequence of some flagrant and inexcusable disregard of right, a liberal sum is offered by way of compromise settlement of what is really no legal claim, whatever, the Company is assailed with unjust criticisms, and with the cry of unfair treatment—raised, it is true, most loudly by those who are anxious to coerce the payment of unjust demands and for their own selfish purposes, but—too often for their own real advantage—finding an echo in the sympathies of many who are content to sit in judgment, without taking that trouble, which simple justice requires, of examining into the merits of the case.

It is far from uncommon to hear those complain of printed conditions in a policy, *who are too indolent to read them*, and who are, probably, not aware of the fact that if the conditions of the policy—instead of being plainly printed on its face, for their information—were left to be inferred by the law (which is very jealous in guarding the rights of that party to a contract who relies entirely upon the honor and good faith of the other), the interest of the underwriter would, in many cases, be still better protected than now. The moment a company defines the conditions of its policy, it becomes responsible for omissions, and places itself under the well-known rule of construction, by which a contract is held to permit much that is not expressly prohibited.

"If he who could and ought to have explained himself clearly and plainly has not done it, it is worse for him; he cannot be allowed to introduce subsequent restrictions which he has not expressed."—Vattel's "*Law of Nations*," *Book ii*, *Chap. xvii.*

It may, therefore, indeed be questioned, whether, in the attempt to place clearly before the assured, in the policy, the conditions upon which it is based, the underwriter does not lose many advantages which a blank contract would secure before a court of law, by the mere inference and operation of the law itself.

With a policy *entirely free from conditions of any kind*, for instance, a company would be protected by conditions which are *implied by law.* Under such a contract it would be secured, not less thoroughly than now, against the unreasonable claim of one, for example, who should change the occupation of a building, insured as a dwelling house, into that of a planing mill, without its consent. In such a case, it would simply be necessary for the company to say, "*into this contract we never entered.* We insured a dwelling, but it has been changed to a more dangerous risk, for which we would have charged a higher rate." It would require no policy condition to protect the company from the consequences of such an increase of the hazard, and when it calls the attention of the assured to the fact that any increase of the hazard will vitiate the policy, by clearly printing the statement on the face of the contract, it does so gratuitously, and in a spirit of fairness which is not always appreciated.

The right of a landlord to be consulted as to any change in the uses or occupation of his property by a tenant, is universally recognised; and it should be remembered that the contingent interest of an underwriter in an insured building is frequently measured by no smaller sum than its full value.

The following extracts from the decisions of jurists who stand at the head of their profession, show clearly, that no policy condition is necessary to protect an insurance company against those who are dishonorable enough to conceal important and material facts, or who procure their insurance by misrepresentation or fraud.

Angell says:

"In every sort of insurance, whether Fire, Life or Marine, it is held to be one of the plainest principles of equity, that a contract, which one party *has been induced to enter into from his ignorance of the thing concealed, shall not be enforced against him by the other who has concealed it.*"

Lord Mansfield said:

"Good faith forbids either party, by concealing what he privately knows, to draw the other into a bargain, from his ignorance of that fact and his believing the contrary."

Chief-Justice Marshall said:

"The contract of insurance is one in which the underwriters generally act upon the representation of the assured, and that representation ought, consequently, to be fair, and to omit nothing which is material for the underwriter to know."

Judge Story said:

"In such cases, the underwriter necessarily reposes a trust and confidence in the assured, as to all the facts and circumstances affecting the risk, which are peculiarly within his knowledge, and which are not of a public and general nature, or which the insured knows or is bound to know."

Chief-Justice Gibson said:

"The contract of insurance is eminently *a contract of good faith.* It is not sufficient for the insured to answer all the questions propounded to him. *Like a witness on the stand, he is bound to tell the whole truth*, without waiting to be interrogated."

As before stated, it is in a spirit of fairness, and that the policy-holder may be informed for his own safety, that companies print clearly in their policies, even those important conditions which would be inferred by law from the very spirit of the contract; and the business man who places a policy in his office safe, without once reading it through, has only himself to blame if he suffers the consequences of a negligence, *which he would not exhibit as to the most insignificant of other business papers.* Says an able writer on Commercial Law: "A majority of well-trained and careful business men, who have large amounts at the risk of fire, and whose indemnity depends upon the policies of insurance which they hold, and upon their conforming to the terms and conditions thereof, *never read the entire contents of a single policy of insurance held by them*, or examine the conditions and requirements thereof, with a view to ascertain whether they are conforming thereto. It is not an unusual thing for a man, the main bulk of whose property has just been destroyed by fire, *to get out from his safe and read, for the first time, his contracts of indemnity!*" And he adds, with much truth, "*The business of insurance is, fortunately for the business community, mainly managed and controlled by men whose high character and usually clear sense of equity prevent them from availing themselves of immaterial or technical objections, except in cases where they believe there has been fraud.*"

A glance at the small proportion of losses contested by companies, will establish the truth of this statement.

At the close of the year 1875, the reports of eleven of the largest companies, showed that *a sum not equal to two per cent. of the amount of losses paid by them during that year, were in suit at its close;* and as those losses in suit were the result of an average of, at least, three years' business; it follows that *the losses contested are less than one per cent. of the whole amount of losses incurred!*

When it is remembered how many fraudulent claims are made upon underwriters, it becomes a serious question—not whether too many claims are contested by them—but *whether enough are resisted to protect the interests and ensure the security of their more honest claimants!*

Aside from the hazards to their own property from the torch of one who becomes an incendiary, for the purpose of defrauding an insurance company, it is well known that honest property-holders pay double the amount of premium that would be required of them but for the frauds of such incendiaries.

SPECIAL HAZARDS,

And How to Inspect Them.*

The most of these hazards have not been profitable to insurance companies, probably on account of the disregard paid by many manufacturers to the requirements of safety in constructing buildings and to their neglect to provide proper appliances for extinguishing fires.

The use of the various products of petroleum, not only for lights, but in the processes of many manufactures, such, for instance, as rubber works, shoe factories, printing offices, bleacheries and print works, dye works, and others, has, probably, had much to do with the increase in the number of fires over those of former years. The enmity of dissatisfied or discharged hands, also, especially in seasons of strikes, sometimes leads to fires, and is a danger which should be carefully considered; indeed, employers who are constantly quarreling with their help are not safe men to insure. It should be remembered, also, that heat, as before stated (page 59), results from almost every operation of force,* and that there is no process of manufacture which involves motion of any kind, or which depends upon the principles of chemical combination, which is not dangerous to a greater or less degree. But the chief reason why so many special risks burn, is the want of foresight on the part of manufacturers in not effectually separating from the great bulk of property exposed to a fire, *those dangerous processes which might, easily and at small cost, be entirely isolated.*

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*N. B.—As to the construction of buildings, see page 84, and under head of "Woolen Mills," page 269.

It took years of losses to convince the owners of cotton mills that the pickers should be in an entirely separate structure from the mill, and it may require many more years of disaster to convince the owners of flour mills, planing mills, paper mills, and other special hazards, that safety lies in a similar division of their risks, so that the whole property need not be lost by a single accident.

It should be the business of underwriters to encourage these improvements. When special hazards are constructed with reference to the rules of prudence and common sense, each establishment being divided up into two or more distinct risks—the more dangerous portions, such as dry rooms, paint rooms, picker rooms, boiler rooms, oil storage rooms, etc., being completely isolated, so that their burning will not endanger the larger values—we shall expect to insure planing mills and other dangerous specials, at rates which their owners can better afford to pay.

It is possible, by the judicious division of even the most dangerous risks, to confine a fire to a comparatively small value, and thus materially improve them. Not a small portion of almost every manufacturing risk involves no greater hazard than that of a simple warehouse risk, and might be insured at warehouse rates but for its unnecessary exposure to dangerous processes, and the owner who subjects the whole of his property to the consequences of a single accident, has no one but himself to blame if an intelligent underwriter charges the rate due to the most hazardous portion for the whole property at risk.

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* So accurately has science determined this fact, that it is now known that heat has its exact, mechanical equivalent. A weight of 772 lbs., falling through one foot of space, will generate heat enough to raise 1 lb. of water 1° Fahrenheit and 1 lb. of water, falling through one degree of temperature, will produce force enough to raise a weight of 772 lbs. one foot high; thus showing that heat and force are exactly convertible into each other.

Agents cannot be too careful or thorough in their inspection of special hazards. *Every part of each building should be examined, from cellar to garret.* Closets, work bench drawers, tool chests, dark attics, and all concealed places should be examined for oily rags or oily cotton waste.*

The buildings of all special hazards should be constructed substantially as recommended for Cotton and Woolen mills (which see), in order to be considered standard risks, and the appliances for extinguishing fire should be not less efficient.

When iron doors are provided to cut off dangerous processes, they should be constructed and hinged as described on pages 40 and 41.

All concealed places, such as spaces between floors, hollow partitions, casing of eaves in attics, hollow box cornices, etc., are objectionable, and should be avoided. They serve to spread fire and form harboring places for rats, which sometimes carry oily rags, greasy waste or other combustible materials where they may take fire spontaneously. (See *ante*, page 53).

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* For an instance showing the necessity of such thorough examination, particularly of all "out of the way" places, see, under head of "Spontaneous Combustion," *ante*, page 72.

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Dry Rooms. Where *dry rooms* are used, whether in wood-working or other risks, they should be carefully inspected. The steam-pipes *should never be directly under the material to be dried*, where the droppings of pitch or resinous distillations, dust, refuse, or the material itself, can fall upon them, but should be arranged on iron supports around the side of the room. The dry rooms of wood-working risks, especially, if not of all others, should be outside of the main building, or effectually cut off by fire walls and iron doors so that, in case of their burning, they may not endanger other property. They should be so constructed as to be easily cleaned and should be kept clean. Under no circumstances should the hot-air or steam-pipes be permitted to become covered up or coated with dust.

In all dry rooms, ventilation should be provided to prevent the accumulation of inflammable gases generated during the process, and they should be so arranged that they may be closed, air-tight, if necessary, to smother a fire.

There can be little doubt that many of the fires originating in wood-drying rooms are caused by the ignition of inflammable gases evolved by the drying wood. That wood subjected to heat will evolve such gases may be proved by the familiar experiment of thrusting a stick of pine wood into a fire. At the opposite end from the flame there will escape gases which may be readily ignited by applying a match.

Oil Rooms, in which the supply of oils is kept, should never be *under or near stairways*, so as particularly to endanger them, in case of fire. As these are the only means of egress for workmen, and as vertical pipes and hose attachments ought to be near the stairways, and access to the upper stories is necessary for firemen, not only may the lives of operatives be endangered, if the stairways are made impassable, but the property also.

Gas Meter. This should be in the *safest part of a building*, where least liable to accidents and where it may have free ventilation to the air. (See the loss of the Social Mill of Woonsocket, under head of "Cotton and Woolen Mill Fires.")

Water Power. While *water power* is preferable to steam power, on many accounts, an irregular supply of water, as in the case of a mill obliged to lose several months in every year, owing to a failure of water by drouth, is calculated to have a material effect upon the profitableness of the mill, and, consequently, on the moral hazard. The supply should be sufficient to keep the mill in *constant operation throughout the year*, or steam power provided to remedy the defect.

Boiler Rooms. In examining boiler rooms the agent should be careful to notice whether any materials are deposited over the boilers. Wood for fuel is, sometimes, piled over them to dry when wet—a most dangerous practice. In one instance coming to our notice, a can of *petroleum lubricating oil was kept over the boiler of a mill* that the oil might not freeze, where a leak might have caused a destructive fire. Such practices should condemn a risk. *It is not safe to rely upon assurances of reform* in such flagrant cases of carelessness.

Where the space above boilers is used for drying wool or other material, great care is necessary to keep the tops of the boilers cleanly swept. They should be covered with masonry, and the wool or other material so secured that it cannot fall upon them.

Where boilers are forced, at times, above the pressure allowed by the boiler inspector, the risk is not a safe one, and should be avoided.

Boilers underground are never safe if the ground above them is used for piling lumber or other combustible material, as is, sometimes, the case in planing mills, saw-mills, etc.

Where shavings are used for fuel, at least one per cent. additional should be charged, if the boiler room exposes the risk. The use of shavings for fuel, resulting frequently in "back drafts," is a common cause of fires in planing mills, and where they are used for fuel (and they are sometimes purchased for fuel on account of their cheapness), the risk is materially increased.

Chimneys to Boiler Furnaces should be built especially for the purpose. A chimney not so built, but afterwards adapted to the purpose, is rarely large enough or safe. They should have an internal capacity of, at least, 64 square inches, and should be constructed with double walls and with an air space between the inner and outer walls, especially if inside of the building (see *ante*, page 42). No wood-work should be framed in them and they should rise, at least, twenty feet above the peak of any shingle roof near them ; and, where wood, shavings or slabs are burned for fuel, should be provided with a good spark arrester.

Iron Chimneys are liable to rust and permit sparks to escape into roofing or other wood-work through holes. If used, they should be well stayed with iron stay-rods or chains and kept clear of all wood-work by at least twelve inches space and metal sheeting.

Steam-pipes and their danger. On account of the prevailing skepticism, so general among practical mechanics, mill owners, and others, as to the ignition of wood by steam-pipes, the agent will find his task of examining for the danger of steam-pipes, throughout a large establishment, a laborious one, but that of convincing owners as to their danger a still more difficult one.

He should be in possession of *facts* to substantiate *theory*, the latter being generally most unacceptable to so-called "practical men," (who are, of all others, at times, the most impractical), and, for this reason, we have given, under the head of "Causes of Fires in Cotton and Woolen Mills," (which see) a few of the more notable instances of fires from steam-pipes.

Not included among them, however, is the following case, which shows, conclusively, that even the best quality of hair felting, so generally used as a non-conductor, is not a safe packing for steam-pipes *if enclosed in wooden casing, so as to confine the heat*—as is, frequently, the case with pipes passing through the open air from one building to another, and often in the buildings themselves.

A fire occurred at the mill of Mr. William Upham, Spencer, Mass., caused by the ignition of *hair felting* wrapped around a 3½ inch steam-pipe, three thicknesses of the best quality of one inch felting being used, and the whole *enclosed in a wooden box*, two feet square. The pressure of steam was 75 lbs.

When discovered, *the felting was thoroughly on fire*, and had set fire to the wooden casing. The discovery was—fortunately for our purpose—made in the day-time, and was a clear case of the ignition of the best hair felting by steam-pipes. The owner, in repairing the damage, was careful to substitute for the felting a packing of plaster of Paris or gypsum.

It is important that agents should examine carefully as to the danger from steam-pipes—so frequently overlooked by insurance inspectors and property owners—and where pipes are covered with felting *and enclosed in wooden boxing* (when exposed to the air, felting is not so dangerous), or where they are packed in *shavings, sawdust or charcoal* the risk should be declined unless the fault is remedied.

If the owner is not disposed to profit by the facts we offer as to the experience of others—*we are*, and must decline to engage with him in any experiments to test the question further.

Lights. Lamps suspended by *cords* are unsafe, as cords are liable to break and let the lamps fall. Wires or chains alone are admissible. The shades and chains, in such cases, should be kept clear of the "flyings" or fibrous collections incidental to many risks. (See *ante*, page 56).

Watchmen. None but reliable, sober men should be employed, thoroughly conversant with all the appliances at hand for extinguishing fire. A *watch clock* or watch should be provided to ensure faithful performance of duty, and it should be in charge of the owner or superintendent, a record being kept of each night's register. In all special hazards, and in wood-working risks particularly, the watchman should commence his duties as *soon as the employees leave the building*. As journals are usually warm after the work of the day, the danger of fire is greatest, and at that hour they need the most careful attention. He should, at once, examine all parts of the risk for heated bearings, and should always carry a *covered light*, burning a safe whale or lard oil.

All establishments running overtime at night, should pay additional rates, excepting only those where night work is an incidental feature of the risk, such as rolling mills, furnaces, rubber works, paper mills, hat factories, flour mills, etc.

Special hazards, unfinished, unoccupied, or not running, should be charged the same rates as if running

Old, unused machinery should neither be insured nor permitted to be insured. A serious moral hazard often attaches to the insurance of it. It is seldom worth more than old iron of equal weight. Its presence, in any quantity, in a risk is objectionable, as it serves to collect rubbish and dust and endangers the property from spontaneous combustion, inseparable from such collections.

Wooden Journals are unsafe if the number of revolutions per minute exceed 100.

Metal drip-cups should be suspended by wires under journals of shafting that the oil dripping from them may not saturate the floors below.

Compound specials, with a number of different manufacturing risks under one roof, or congregatious of a number of special hazards about a common water-power, are not desirable risks to insure, at obtainable rates, and it is almost impossible to determine an adequate rate.

Lubricating Oils. Where petroleum lubricators are used they should be carefully tested. None flashing below 250° (some authorities say 300°, see *ante*, page 81), should be used, as, otherwise, there might be danger of their igniting from a hot journal.

If petroleum oils could be made so that they would not ignite at lower temperatures than animal oils, they would be much safer than other oils for lubricating purposes ; as there would be no danger from the spontaneous ignition of the waste, rags, or other materials used for wiping off machinery. (See *ante*, pages 60 and 72).

APPLIANCES FOR EXTINGUISHING FIRE.

Steam Jets. In those classes of risks where combustible substances, shavings, fibre and dust are incidents of the process; such risks, for example, as planing mills, flour mills, cotton mills, flax mills, etc., *steam jets* are among the most efficient of all fire apparatus, especially if the rooms can be closed. The steam pervades all parts of the room and effectually smothers a fire. Valves should be outside, and there should not be more than one valve to open for any one pipe. The practice of having intermediate valves at the boiler (as is sometimes the case to prevent loss of steam by condensation), may destroy the efficiency of steam-jets, especially in case of a fire at night, if the boiler-room should happen to be locked. In an instance coming to our notice of a fire in the picker-room of a cotton mill, near Philadelphia, where the employees fled from the building in a panic, the mill was saved by the presence of mind of a passing mechanic, who, with a heavy wrench, broke one of the cast-iron steam heating pipes in the room and went out, closing the door after him. The escaping steam extinguished the fire, in a few minutes. If steam jets had been provided the same result might have been more certainly secured.

Force Pumps. Too much reliance is often placed upon force pumps for extinguishing fire. It is sometimes found that they are not in order when needed, and valuable time is lost in trying to start them—the packing may be dry or valves rusted ; if run by a belt (a very objectionable mode) it may not be on the pulleys at the time, or may be cut by the fire ; the pump itself may be so injudiciously located that access to it is cut off, at an early stage of the conflagration. Agents should see to this and observe, carefully and intelligently, all the probabilities for and against a successful contest with fire.

The force pump should be so located that it may be operated *to the last moment*, and should never be where it may have to be abandoned early in the fight. It should not be so placed as to be subject to the frequent fires incidental to dangerous processes.

If by steam-power, certain relative proportions of steam areas to water areas are indispensable for efficiency. The proper proportion for a fire pump, where steam is worked at high pressure, is—steam areas to water areas as 4 to 1; that is, the diameter of the steam piston being 10 inches, for example, the diameter of the water cylinder should not exceed 5 inches.*

The ordinary sizes are 14 x 7 and 10 x 5. In some of the first-class steamers, for throwing water to great heights, the proportion is as high as 5½ to 1.

A good 14 x 7 force pump will throw a 1¼ inch stream considerably more than 100 feet vertically, with a steam pressure of 80 lbs., and do very fair service with a night pressure of 45 lbs.

Rotary pumps throw the largest amount of water, but require a large amount of power, and, for this reason, are seldom found in other than water-power mills. They should be so arranged as to be thrown into gear, if necessary, from the outside of the building, and should always be *thrown into gear at night.*

As valves are liable to rust and to become immovable by the "gumming" of poor lubricants, they should be tried and oiled frequently, *at least once a week.*

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* Areas of circles are to each other as the *squares of their diameters*, hence a 10 x 5 pump would have a steam cylinder area represented by 100 and a water area of 25—or as 4 to 1.

Duplicates of valves and other important parts might profitably be kept on hand to substitute for those which become broken or inoperative. A mill was burned down while the owner was on his way to a neighboring town, with the valves of the pump, to get new ones.

The thread and dimensions of all hydrants and hose couplings should correspond with those of the nearest city or village fire department. (See *ante*, page 96).

It is unnecessary to remind agents that steam-pumps are useless, at night or on holidays, *unless steam is kept up.*

In all cases, a proper supply of good hose should be kept to reach all parts of the premises.

Vertical Stand-Pipes, connected with a tank in the attic or on the roof, *and with the force-pump,* and extending from the basement up to *and through the roof,* with hose attachments (and common cocks for filling buckets) at each floor—the hose being kept constantly attached and ready for use, and with a hydrant and hose attached, *on the roof,* properly protected from the weather—are very efficient. Few cotton or woolen mills of approved construction are now without them.

Care should be taken to see that the pressure is sufficient on the upper floors; as, if the reservoir or tank is merely on or under the roof, the pressure—in the absence of force-pump connections—would be sufficient only for the lower levels, and, on the upper floors, would not be more than enough to open the hose.

It would require a reservoir, at least 100 ft. higher than the roof, to supply, without a force-pump as an auxiliary, the necessary pressure for stand-pipe outlets or hydrants of 2½ inches, with hose of 2½ inch water-way and 1 inch working nozzle.

If the reservoir is not over 50 feet above the roof, it would be better to use 1½ inch hose and a ½ inch nozzle, unless, of course, a force-pump can be connected with the rising main to supply the requisite pressure.

It would seem unnecessary to remind agents and owners of the necessity, by examination, to see that the connections of pipes are properly made *with the supplying mains*, if the neglect of so simple a precaution had not resulted in the destruction of some of the finest buildings, otherwise almost perfect in their fire appliances.

A simple lever-valve attachment, for turning on the water—*admitting, by its construction, of but one movement*—is preferable to the ordinary "wheel valve," which is liable to be twisted the wrong way and broken off, in the excitement attending a fire.

Sprinklers. A sprinkler consists of a net-work of pipes, perforated with small holes, so arranged and directed that when a valve connecting the sprinkler with the main pipes is opened, the water will flow into all parts of the system of pipes, and escape at the perforations, with sufficient force to wet thoroughly, and in a very short time, every part of the room it is designed to protect. *Sprinklers* are very desirable, but cannot be implicitly or solely relied upon, from the fact that, owing to their liability to damage property when used, *they cannot be tried before a fire*, and, in the hour of necessity it may, for the first time, be discovered that they will not work. At the trial of a sprinkler, in a mill at Holyoke, Mass., recently, the pipe burst as soon as the water was turned on. Where pipes are of cast iron, they are almost certain to fracture if cold water is turned on while they are heated. A faulty joint or a clogged pipe, also, renders sprinklers useless. In a large establishment lately, a pipe was found to be effectually closed by a sheet of rubber packing in a flange joint, *which had never been cut out by the pipe fitter.* Of course no water could pass and such a fault could not be detected until the pipe was tested. When properly constructed, however, and with a sufficient head of water, supplied from a reservoir at least as high as the mill, (a mill tank is not sufficient to make them thoroughly efficient, unless the force pumps can be applied), and so arranged as to be set in operation, if necessary, from the outside of the building, sprinklers are very effective—applying water, in the form of spray, to all parts of a room, thoroughly wetting roof and floors alike, and working where firemen might not be able to operate, they soon extinguish a fire.

They should be wrapped with a thin paper to prevent the orifices from being clogged with dust, etc.—a very simple but important precaution. *Only a thin, unsized paper should be used, that it may yield readily and instantly to the pressure of the water,* a poor quality of newspaper will suffice.

A roof sprinkler is sometimes very efficient, as it affords the means of applying a large volume of water at the top of the mill, and at a height which might, otherwise, prevent the application of it.

Certain relative proportions should be observed in the sizes of distributing pipes and their apertures, as compared with the rising main. The area of the latter should, generally, be double the sum of the areas of apertures of distribution, even where the reservoir is 100 feet higher than the mill. With a less head of water, as where the reservoir is not higher than the mill, the proportion should be greater—say four or six to one. The following table, prepared by Mr. James B. Francis, C. E., of Lowell, Mass., will be found to be convenient for sizing the pipes. It is computed for the proportion between the sectional area of the supply pipe and the sum of the areas of the orifices which it supplies with water, of *two to one.* In order to have the proportion *four to one,* the number of orifices to be supplied should be one-half that given in the table ; for a proportion of *six to one,* the number should be one-third that given in the table.

Diameter of supply pipe.	Number of orifices of distribution of different sizes which can be supplied.					
Inches.	$\frac{3}{16}$ inch.	$\frac{5}{32}$ inch.	$\frac{1}{8}$ inch.	$\frac{1}{10}$ inch.	$\frac{3}{32}$ inch.	$\frac{1}{16}$ inch.
8	908	1312	2048	3204	3644	8195
7	696	1004	1568	2452	2788	6274
6	511	738	1153	1802	2050	4610
5	355	513	800	1251	1424	3201
4½	287	415	648	1013	1152	2592
4	227	328	512	801	911	2049
3½	174	251	392	613	697	1568
3	128	185	288	450	513	1153
2½	89	128	200	313	356	800
2	57	82	128	200	228	512
1¾	43	63	98	153	174	392
1½	32	46	72	113	128	288
1¼	22	32	50	78	89	200
1	14	20	32	50	57	128
¾	8	12	18	28	32	72
½	3	5	8	12	14	32

Automatic Alarms, so constructed as to give an alarm and apply sprinklers upon any unusual rise in the temperature of the room in which they are placed, are desirable.

As an instance of how efficacious and simple might be the operation of automatic arrangements for the extinction of fires, we may mention a fire which occurred in May, 1876, in a large bakery, at Stamford, Conn.

A lot of kindling wood in the storage room was set on fire, it is supposed, by incendiaries. The fire was directly beneath a sink with which a water faucet was connected. The heat of the fire generated sufficient steam in the pipe to burst it, and the water escaping, struck, with the force of the pressure, the wood-work of a cupboard just over it, and must have fallen in *a shower sufficient to extinguish the fire.* The operation was almost identical with that of a sprinkler which, fortunately, was thus improvised for the occasion.

Casks of Water and Pails are so inexpensive and so effective, because of their simplicity and the fact of their being always ready for use, that they should be insisted upon. The owner who is so short-sighted or indifferent as to neglect their provision is not apt to be a safe man to insure. Of the fires reported in mills for the year 1875, the efficiency of pails of water was demonstrated by the fact that *twenty-five per cent.* of the whole number were extinguished by their use alone. *How many were extinguished before serious damage, and not reported to the insurance companies, we have no means of knowing.*

Casks of water should be provided on the shingle roofs of buildings in which wood or shavings are used for fuel; and it is claimed that a good "fire-proof paint" is a desirable protection for such wooden roofs.

Pails for fire purposes should be used for no other purpose.

Organization. Too much cannot be said in favor of a quietly managed but thorough organization of the employees of a large establishment, for the extinguishment of fire. It secures not only the advantage of concerted and harmonious action, but an exemption from panics, and prevents loss of time in an emergency, *when moments are precious and cannot be spared.*

Every employee should understand his duty and post, in case of a fire, and the entire force should be as regularly drilled as are the professional firemen of a city. All excitement, loud cries and unnecessary demonstration are to be deprecated and avoided. Cool, quiet and persistent effort should be expected and exacted of every one from the superintendent to the youngest boy.

Most of the larger manufactories of the country are beginning to realize the importance of organization for fire extinction, and not a few consider the discipline and organization of their employees as necessary for safety as are all their appliances of force pumps, sprinklers and steam jets.

Without concerted and intelligent action, the best appliances are often valueless.

Most special hazards should be rated according to a schedule, each deficiency from a standard being charged for, as in the case of cotton and woolen mills. It is only in this way that a proper rate can be arrived at.

Policies should not be written without the following specifications, viz :

$........on building.
$........on boilers and engine.
$........on machinery,
$........on stock.

The total amount of insurance should, in all cases, be limited in the policy, generally to an amount not exceeding two-thirds the value of the property, and in the more hazardous, high-rate risks—requiring unusual care in management—to not exceeding fifty per cent. of value.

Appropriate survey blanks are furnished by the Company for each class of risks, and none other should be used, nor should the survey blanks of other companies be used in reporting applications.

It should be remembered that surveys and applications for insurance of special hazards must, in all cases, be submitted to the Company for examination and approval, before any insurance is made binding by the agent, and the policy must be written at the New York office.

If the special agent of the Company has inspected and approved the risk, the insurance may be *made binding* by the agent, but the special agent's written approval slip should accompany the application to the Company for a policy. In all cases, prompt response may be expected to letters and applications, and, where circumstances require it, and the agent requests it, the *Company will telegraph its acceptance or rejection of a risk.*

Duties of Inspectors and Agents. In concluding this important subject of the inspection of risks, we would remind the agent that an inspector who contents himself with going through a building, quietly observing its faults, without pointing them out to the owner, *does less than his whole duty to his company and to society.* It is not sufficient merely to decline an objectionable hazard on account of some fault in construction or management, without assigning reasons for it.

Many owners of property neglect to take proper precautions of safety, because they are ignorant of the necessity for them, and need only to have them thoroughly and intelligently explained, in order to adopt them.

On the other hand, those property owners who take pains to protect their risks with approved fire apparatus, and who exhibit commendable pride in keeping their buildings neat and clean, *should be encouraged in well-doing.* A well-deserved compliment should never be withheld, and is seldom thrown away.

Insurance companies find that the thorough survey of their risks, from time to time, by intelligent, painstaking inspectors, has a beneficial effect beyond the cancelation of policies on objectionable hazards, and that the value of such surveys should not be estimated merely by the number of risks which may or may not, afterwards, burn of those declined. The moral effect of an intelligent inspection *upon the risks retained*, in preventing fires *which might have taken place but for such inspection*, would be nearer the measure of the benefit secured.

FIRE INSURANCE TECHNOLOGY;

OR

THE SPECIAL FEATURES OF RISKS AND HOW TO INSPECT THEM.

NOTE.—The rates named in the Specific Tariff furnished by the Company, are to be regarded as superseding any mentioned in the following pages.

Academies, Schools, Seminaries, etc. These risks are not so profitable to insurance companies as is generally supposed. Institutions for the education of females are somewhat better risks than those for males, who are generally more mischievous and unruly. The heating and lighting appliances should be examined thoroughly. Children are apt to be careless with matches.

Dormitories should be so constructed that the artificial lighting may be from the halls, so as to dispense with movable lights in each compartment, and are much better risks when lighted by gas than when lighted by kerosene lamps. Where kerosene lamps are allowed in each room, there is great danger of accidents from romping and unruly conduct, especially in the case of male schools. The different rooms should be separated by partitions *running to the ceiling*, but open to the hall, so that the teacher in charge can exercise a better surveillance.

In reporting risks to the Company advise as to heating, lighting, number of students, and number of rooms in dormitories.

If heated by hot air furnace, as usually constructed, add, at least, 25 cents to rate.

Furniture and fixtures must be specifically insured, except fixed seats and desks which may be insured as a part of the building.

Agricultural Implement Manufactories. *Submit application to Company for its approval, before making binding.* Large establishments using soft as well as hard woods, have not been profitable risks. They frequently combine the hazards of planing mills, iron foundries, machine shops, and paint shops, and the same rules should be observed as to precautions against fire and for its extinction as recommended in the case of those risks. The dry-room should be constructed as recommended on page 180, and the supply of oils, varnish and benzine should be kept in a separate and safe building for the purpose. Only a gallon of benzine (if any) should be permitted in the manufactory; indeed, the mixing of paints, where this dangerous solvent or dryer is used, should always be outside. Only exceptional risks, well-divided, and manufacturing staple articles will be entertained. If shavings are used for fuel, the boiler-room should be constructed as recommended for planing mills (which see). The chutes or conveyors for carrying shavings to the fuel room should be of metal and closed when not in use. Report fully on these points. Advise Company as to the kind of implements manufactured, particulars of boiler-room, and the fuel used, location of paint-room, dry-room, number of hands employed, etc.

Agricultural Implements, Stocks of. These should be insured only for small amounts, and only where the articles are staple and salable. When they are not of approved and popular patterns, decline. New inventions and improvements often entirely supersede previous ones, and render them almost valueless. In reporting to Company, be careful to advise, on these important points, to save correspondence.

Alcohol Distilleries. Decline for this Company.

Asylums, Almshouses, Poorhouses. These are not very desirable risks. They are, sometimes, burned by paupers. If insane patients are kept, 25 cents extra should be charged.

Advise Company as to number of inmates and whether insane patients are kept.

Insurance should be specific on or in each wing or portion of the building, separated from main building by fire walls or by walls having openings protected by iron doors.

Auction Stocks. Decline : values are uncertain and interests undefined. The business is seldom a permanent or safe one to insure.

Bakeries. The oven with its flue is, of course, the point of danger, and should be outside of the building.

When inside, the wood-work of ceiling above the mou‑ial of the oven and over the oven itself, should be protecte‑ by tin reflectors, or shields, so arranged as to have a clear air space between them and the ceiling above. Ovens in cellars with low ceilings are seldom safe. The oven and flue should be substantially built with brick, and the top well covered with sand above the masonry. Wood should never be piled over ovens to dry. The practice is as dangerous as it is common. The floor around the oven should never be of wood, but always of earth, brick or stone flagging. Empty barrels should not be permitted to accumulate in the same apartment with the oven, in the quantities usual to some risks, and ashes should be removed, each day, to a safe receptacle outside. Decline pie and cracker bakeries for this Company, (as to flues to bake ovens, see *ante*, page 42). If shavings are used for fuel, add one per cent. to rate. (See *ante*, page 182).

Bagging Factories. Decline for this Company. These have not been profitable at current rates. The loose, tinder-like fibre is permitted, in some risks, to accumulate on the tops of stove-pipes running horizontally, on steam-pipes, and in lamp shades. Fires from spontaneous combustion are not infrequent. Hands are often careless, and when a fire once starts it soon gets beyond control. Steam-jets should be provided in every room, with casks and pails of water. Oily sweepings are very liable to burn spontaneously, and rubbish boxes should not be kept in the building.

Bark Mills. Decline (see "Tanneries.")

Barns. (See *ante*, page 25).

Barrel Factories. If by steam-power with machinery, decline for this Company. Hand-power cooper shops may be written, if not over four or five hands are employed. A moral hazard is sometimes connected with large, steam-power establishments in consequence of the enmity and rivalry of hand-power shops. Examine the stoves and fire-places. A night watch should be maintained.

Batting and Wadding Mills. Decline for this Company. Owing to the large quantities of loose fibre, the carelessness with which lights are generally managed, and particularly covered lights (which, when not kept clear of dust and cotton flyings, serve only to collect such combustible material in dangerous proximity to the flame), to the dangers of drying, and to carelessness as to steam-pipes, etc., these risks frequently burn.

Blast Furnaces. Submit application and survey. Entertain no application on furnaces *standing idle.* The roof over the casting floor should properly be of iron—if of wood, it should not be so low as to be ignited in case of an explosion or "boil" of the molten metal. Care should be observed in the storage of lime and of charcoal.

Bleacheries and Print Works. See "Cotton and Woolen Mills." Submit application and survey to the Company. Inspect, carefully, the drying room, and decline if steam-pipes are in contact with wood. Where singeing is done over an iron flue, it should be in charge of a careful man and not entrusted to boys. Benzole is often used as a mordant for calico printing. Inquire and report as to the quantity kept and as to how it is kept.

Bone-boiling Establishments. Decline for this Company. (See "Nuisances," page 25).

Book-Binderies. These are unprofitable risks, at current rates, and as usually managed. Benzine is carelessly used; glue unsafely heated; paper clippings and other rubbish allowed to accumulate around steam-pipes or near stoves; and the employees—usually boys and young girls—are frequently careless and indifferent to danger. As these establishments are generally on the upper floors of buildings, little or no salvage is made in case of fire. Decline for this Company.

Boot and Shoe Factories. See "Shoe Factories."

Box Making. Whether of wood or paper boxes, decline for this Company. A steam packing-box making establishment, in which planers are used and shavings are burned for fuel, is little, if any, better than a planing mill. Paper box factories are, also, unprofitable risks. Great carelessness is generally noticeable in the arrangement of gas jets for heating glue (which should be heated by steam), and the hands employed are often negligent. As the materials used are combustible, little or no salvage is to be expected, in case of fire.

Breweries. Submit survey to Company. Examine *kilns* carefully. They should be constructed of brick and iron throughout, with no wood-work exposed to fires. Where any portion of the kiln is of wood, they are, of course, not so safe, although many are still constructed with brick-work resting on wood-work. The fine dust sifting from the grain through the drying floors of the kilns, is very combustible, and should be regularly removed, once a week, that it may not accumulate and ignite at the furnaces. The fires should always be covered with an arch of masonry, so that dust and chaff cannot fall on them and set fire to the grain above. If properly constructed, the falling dust is conducted into receptacles on each side of the furnace, from which it can be raked out daily. Kilns should always be cut off from the rest of the property by iron doors, and their contents specifically insured.

If distilling of liquors is done, decline for this Company.

If barrels are made on premises, a higher rate should be charged, and the Company fully advised (see "Barrel Factories.")

Bridges. Refer to Company. Decline railroad bridges unless the railroad company insures all of its bridges; in which case, refer to Company. Toll bridges are worth 1.75; free, 1.50. Watchmen, casks of water, and pails should be provided. If the bridge is a drawbridge, a specific amount should be insured on each portion. Railroad bridges with wooden roofs are bad risks.

Broom Factories. Decline for this Company. For some reason they have not proved profitable risks.

Brick Kilns. Refer to Company. Buildings are generally cheap, dilapidated and uninsurable.

Brush Factories. Refer to Company, if at full rates. The process of applying the pitch and its preparation is a dangerous one. If pitch pans are inside, decline.

Builder's Risks. See pages 16 and 48.

Cabinet Factories. Decline large steam-power establishments for this Company. On small, hand-power shops, employing three or four men, submit survey to Company.

Candle and Soap Factories. Decline for this Company. They are frequently regarded as "nuisances" in a neighborhood, and have not been profitable risks.

Candy and Confectionery Manufactories. Examine carefully all the tables and heating apparatus. Lines should be small, as both smoke and water damage these stocks seriously.

Carpenters' Shops. Decline large, steam-power establishments using planers and circular saws. On small, hand-power shops, employing not more than three or four men, submit survey. Great carelessness is, generally, observable in the arrangement of stoves, the heating of glue and the construction of flues. The stove-pipe often passes out of a side-wall, roof or window. Stoves with cracks in them are frequently used, and lumber is sometimes left standing against stove-pipes to dry. The rates usually charged for good frame shops, in careful hands, are from four to five per cent., according to circumstances.

Carpet Factories. See "Cotton and Woolen Mills."

Carriage Shops. If by steam-power, these are ~~not~~ desirable at current rates. Small, hand-power shops are better risks. Examine all stoves and fire-places. Evidences of carelessness as to linseed oil and rubbish should condemn a risk.

Celluloid Works. Or stocks composed wholly or largely of celluloid, decline (see page 93). This material, formed mainly of gun-cotton and camphor, is very dangerous. Articles made of it, such as combs, billiard balls, trusses, etc., take fire and communicate it very readily. These risks will probably appear under new names. The latest is Xyrolene.

Cement Works. Refer to Company. Kilns should be outside, in all cases. If barrels are made and the cooper shop exposes the risk, an additional premium should be charged.

Cheese Factories. Refer to Company, with particulars as to fires used and carefulness of management, and as to whether owner manufactures from his own dairy only, or for farmers generally. A factory owned and operated by a corporation or association is not so desirable as one owned and operated by a single individual.

Chemical Works. Refer to Company, with full information as to fires used and substances manufactured. They are sometimes burned as nuisances, by neighbors, when regarded as disagreeable or injurious to health.

Churches usually burn from unsafe heating apparatus, or from lights not properly protected at sides of buildings, particularly in basements. Examine carefully as to lights and furnaces, in accordance with instructions on page 43, and report. The principal register should always be *fastened open.* An extra charge should be made for wooden steeples.

Coal Oil Refineries. Decline.

Coal-Mine Property, Breakers, Miners' Dwellings, etc. Decline, as a rule. Refer exceptionally good risks to the Company, with full particulars as to the mine, supply of coal, facilities for getting it to market, etc.

The following are the current rates for good companies :

Coal breakers, 3.50 ; frame engine and slope house, 2.50; brick metal roof engine and slope house, 1.75; coal chutes for loading into cars, 2.00 ; coal chutes for loading into boats, 1.25 to 1.50.

Coffee Roasting Establishments. Decline.

Cooper Shops. See "Barrel Factories."

Copper Stamp Mills. Refer to Company.

Cotton Gins, and stocks of cotton in them, *decline.* They have been very unprofitable to companies. Fires are frequent, and are caused, possibly, by foreign substances, flinty stones, matches, etc., passing through the gin ; or by spontaneous combustion of cotton fibre saturated with oil from the seed, expressed during the process of ginning ; or by electric sparks from the belts ; or by incendiarism on the part of dissatisfied hands.

Adjustments are generally unsatisfactory. We do n t want them.

Cotton and Woolen Mills, Carpet Factories, Knitting Mills, etc. See "Woolen Mills."

Country Stores. Unless occupied in part as family dwellings, or near good dwellings, decline. See page 24.

Court Houses. These are not such desirable risks, at current rates, as is generally supposed. Where any rivalry exists between two towns in the same County, as to the location of the County buildings, it is not always safe to insure them. The inhabitants of a rival town desire to secure the trade which the holding of court brings to a county seat, and unprincipled persons sometimes remove what they consider the principal impediment in the way of a "change of venue," by destroying the county buildings. Decline to insure county records. There can be little question that extensive frauds in land titles, practiced in some sections of the country, have resulted in a serious moral hazard to some risks of this class; and appearances would seem to indicate that fires, the origin of which could not be accounted for, have been resorted to by the parties implicated in such frauds to cover up their nefarious transactions.

If jails are connected with the court-house, 25 cents should be added to the rate, and if halls are rented for exhibitions the rate for halls should be added.

Depots. Refer to Company.

Distilleries. Decline.

Drug Mills and Wholesale Drug Stores and Stocks. Decline. These risks have been very unprofitable to insurance companies. Fires once started are very rapid. Aided by the numerous elevators, lift-ways and well holes, and owing to the extremely combustible nature of the stock, they are seldom extinguished until the property is destroyed. Wholesale drug stores are bad exposures to adjoining buildings, and intervening walls should be of unusual thickness and carried high above the roof, to afford proper protection. (See page 55).

Drug Stores, Retail and Prescription. Examine carefully as to storing of oils, alcohol, turpentine, ethers, etc. Phosphorus should be kept under water, as every chemist knows. The packing and unpacking room is often carelessly managed. See page 55.

Dry Houses. See page 180.

Dwellings. A well-built dwelling, with safe flues and careful, honest tenants, is always a safe risk to insure, *at an adequate rate.* At the extremely low rates current in some localities, however, dwellings are not particularly desirable risks.

The construction of dwellings—divided up, as they are, into different compartments, not offering, in case of fire, facilities for draughts and currents of air from cellar to roof, so common to warehouses and other risks—prevents the rapid spread of a fire and favors its extinction. The fact, also, that rooms, generally, are occupied either night or day, favors the detection of fire. Probably many more fires are extinguished in dwellings, without serious damage, than are reported to insurance companies.

Notwithstanding these facts, however, it is not unusual for an inexperienced agent to recommend a mercantile or other risk to his company as being "just as safe as a dwelling," urging the absence of fires, lights and other features of the risk as reasons why it should be insured, even at a lower rate. Such arguments result from inexperience. *No risk, not constantly occupied, can be as safe as one that is so occupied;* but dwellings, like all other risks, as before stated, may be insured below cost and cease to be desirable on account of inadequate rates.

In inspecting dwellings, the points to be examined for are, first, the *flues*. These are often very insecurely built from an upper floor, resting on posts or joists, and of a single brick in thickness. As buildings settle, cracks open and sparks escape into an unused attic, where all the wood-work and, possibly, a shingle roof are as dry as tinder. Buildings do not settle equally and chimneys crack, at places out of sight, frequently where they pass through the roof. Defective flues figure largely in our causes of fires—so largely, in fact, as to call for the greatest care on the part of agents and inspectors, who should examine the chimneys of buildings from the foundation to the roof. *Open pipe-holes* cause many fires by escaping sparks. They should be provided with close-fitting metal stoppers, when not in use. *Hearths* should not rest upon wooden beams (see p. 42). *Furnaces* should be constructed as recommended on page 43. *Ashes* should not be kept in wooden vessels in the building, or in barrels or wooden boxes in contact with the frame wall outside. *Wooden fire-boards* are dangerous in case of falling, burning soot. Kindling wood should not be left in or near stoves to dry for the morning fire. Housekeepers should be cautioned against this very common and dangerous practice, and also as to the use of *kerosene* for kindling fires. The supply of kerosene—especially if any quantity is kept in a can or barrel—should not be in the same room with a fire, as, in case of a leak, the most serious consequences might result. Oil kept in a warm room, as explained on page 78, will evaporate a dangerous vapor, which will ignite at the fire or upon the approach of a light. Housekeepers should be cautioned, not only as to the filling and trimming of kerosene lamps near a light, but *near a fire*, also, which is equally dangerous. Inquire as to the care of *matches*, and instruct housekeepers as to their danger if left within the reach of children or of rats and mice. If the building is lighted by gas, the burners, especially in the case of movable brackets near curtains or wood-work, should be provided with glass shades.

Stove-pipes should never pass out through side walls, windows, or through roofs; and where so arranged, as in summer kitchens, the agent should examine carefully to see if they are safely protected by metal or in some other effectual way—they can seldom be made safe. Advise the Company fully on this point.

In case painting is being done, or where the furniture or wood-work is oiled, especially in the case of dwellings finished with hardwood trimmings, the agent should caution the housekeeper as to the danger of rags saturated with linseed oil—they must not be left in the building after use.

We have been thus explicit on many points, already elsewhere treated of, on account of the custom, on the part of agents, of neglecting the inspection of dwellings. *All risks need inspection*, and the visit of an intelligent underwriter, even though he may discover no fault in a risk, is valuable, as it may call the attention of owners to the danger of fire, and lead to precautions which will secure an immunity from it. See "Fires from Carelessness," page 52.

Dwellings Unoccupied are poor risks and should be avoided, unless surrounded by good, occupied dwellings, and in charge of some careful person. Chronic cases of vacancy, especially in isolated or *unhealthy* locations, are bad risks and should be regarded as *uninsurable.*

Dyeing and Cleaning Establishments. As a rule these are undesirable risks, and especially since the use of naphtha or benzine for cleaning purposes. Serious explosions have not been infrequent. In some establishments these dangerous materials are handled in large quantities and very carelessly.

Elevators—Grain. Decline insurance on *buildings.* Accept lines on grain contained in them, at short rates.

Where grain risks are desired *by the year*, the same rate should be charged as on the building. Decline to insure, by the year, in the name of the warehouseman on grain stored in his elevator. Under no circumstances should he be permitted to obtain annual policies, at the current rates, in order to peddle them out to his customers for short terms and at short rates. Insurance is our business, not his. He would thus be enabled to profit at the expense of those underwriters foolish enough to consent to such an arrangement. *The rates are not graded for annual policies* and are entirely too low, unless we obtain short rates. We prefer risks on the *grain* in elevators to risks upon the *buildings* themselves, even at the advance in the rate, of 50 cents, called for by the tariff. Grain follows the trade and market and is always to be found in paying localities, but the elevator building remains through all the hazard of a change of trade, and partakes, eventually, of the moral hazard of an unpopular market or undesirable locality. Grain elevators located on the line of railways may thus become liable to a serious moral hazard, in consequence of the building of a new railroad and a change of trade. Examine carefully all bearings, especially those in the upper portion of the building. Either steam-jets or sprinklers would be desirable fire appliances for the upper story.

Fair Ground Buildings. This class of property is often neglected through the greater part of the year and is often burned by the same moral hazard which sometimes destroys court-houses and other county buildings.

Fire-Arms Manufactories. Examine as for machine shops, and advise Company as to any wood-work done.

Fire-works Manufactories and stocks composed largely or wholly of fire-works, decline.

Flax Mills. Have not been profitable risks. Carelessness as to open lights and collections of combustible fibre in closed lights, on stove-pipes and steam-pipes, spontaneous combustion, etc., have caused many fires. Do not solicit for this Company.

Fertilizers, Manufactories of, are generally "nuisances," and should be declined.

Flour Mills. Refer to Company. These risks have been very unprofitable to underwriters, and require thorough and intelligent inspection. The instruction slip attached to the survey, furnished by the Company, gives a brief synopsis of the principal points for examination and report. We reproduce it here.

"How to Inspect a Flour Mill.—Be careful to notice all evidences of carelessness, or want of CLEANLINESS. *Cobwebs* should be carefully swept down, and other "catch-alls" for dust removed. The fine dust of flour mills is very inflammable, especially that from the "middlings," which has been known to take fire readily —like gas—from the flame of a candle. For this reason, no OPEN LIGHTS should be used. Notice whether the floors are kept cleanly swept, and free from accumulations of rubbish in corners. Many millers, in case of a "choke" in the chutes or elevators, shovel the bran or other material out upon the floor and neglect to remove it. The *overflow of oil on flooring, underneath bearings, should be cleaned up daily.* Metal *drip cups* should be provided to catch the falling oil. The sweepings of floors, if saturated with oil, are liable to burn spontaneously. Spontaneous combustion is nearly always the result of neglect. The SMUT MACHINE should not be above the lower floor, where it can be easily watched, and flooded with water, in case of fire, and where the smell of fire or of a heated journal will be soonest detected. Unless the SMUT is blown out of the building by the machine, it should be removed daily, and not left in the mill over night, as fires often occur from spontaneous combustion where it is allowed to accumulate. WOODEN JOURNALS are dangerous, if the number of revolutions is over 100 per minute. Avoid all STEAM MILLS slightly built of wood, and with scant supply of fuel, ON PRAIRIES ; we do not want them under any circumstances ; nor do we want WATER POWER MILLS, where the supply of water is not sufficient to keep the mill in *constant operation* (unless steam power as an auxiliary is provided). In water power mills, the FOREBAY should be planked above the highest rise of water, and the *water wheel securely blocked*, when the mill is stopped at night or on holidays, *to prevent freshets from running the mill while unattended, and causing fire from friction.* Some advocate letting the upper burrs down to hold the lighter running machinery. The more secure way is to block the wheel. Above all things, examine carefully into the MORAL HAZARD and financial condition of the risk. Has it been a profitable investment up to the date of the application, and is it likely to continue so? Insure no idle, worn out or unprofitable mills. We prefer grist mills doing custom work only, to those flouring grain *for the general market*

—the latter are liable to severe losses from fluctuation in prices, and we write upon them only in exceptional cases. The owner should be a practical miller, thoroughly understanding his business. Scrutinize VALUES closely. Not over one-half the value of a steam mill, nor over two-thirds the value of a water-power, nor over two-thirds the value of flour and grain in the mill shonld be insured in any case. Nor do we want over three thousand dollars on any one risk. Owing to the large number of chutes, spouts and elevators in flour mills, they usually prove a total loss, in case a fire starts, and this fact should not be lost sight of in making a rate. READ THE SURVEY OVER CAREFULLY before sending it to the Company to see if, after your examination, you can endorse the replies of the applicant to the questions."

The numerous fires caused by the ignition and explosion of the middlings and other fine dust of flour mills, in consequence of carelessness in the use of open lights, calls for more than usual care in the inspection of risks, and for warranties in the policy that open lights shall not be permitted. It is not, however, by open lights alone, that such fires may be caused. The same result may be produced by electricity from belts or by the friction of the stones, as where the feed goes off while at work. Being of a flinty, hard rock, they strike fire easily. The "feed" may go off for the want of grain in the hopper or in consequence of an obstruction in the feed-pipe. A spider's web was sufficient to stop it, in one case, and led to a violent explosion in an English mill.

When flour is showered from a sieve, over a gas flame, rapid combustion takes place. The same result follows the contact of flame with many other kinds of combustible dust. In the Pullman palace car works in

Detroit, in 1875, an explosion occurred in one of the chutes for conveying rubbish, shavings, etc., caused by the ignition of the wood-dust which had—probably for the first time in years—assumed the precise proportions of admixture with the air necessary to cause explosion.

The following are some of the many instances of fires in mills, caused in the manner described.

Mill of Champion, Adams & Co., Detroit, December 30th, 1875. This mill was running at night, with the proper number of men. The man in charge of that portion of the mill where the fire occurred, went into the bin where the middlings were stored, with a lighted globe lamp, for the purpose of shoveling middlings. He placed his lamp on the floor and proceeded with his work, raising clouds of dust which filled the whole of that portion of the mill. *The glass globe of the lamp had been broken* some time before, and permitted access of the flour dust to the flame. The result was a fire so rapid that the man was severely burned in his unsuccessful attempts to extinguish it.

A fire occurred in September, 1869, which destroyed the mill of Mr. Bertchy, at Milwaukee, and was caused by a candle left burning near a feed spout.

The burning of the Tradeston Mills, at Glasgow, Scotland, August 10th, 1872, was caused by the ignition of flour-dust by the friction of the stones—the feed having accidentally stopped. The stoppage of the feed is less likely to be noticed in a mill of many runs of stone, than in a small mill of only two or three. The Tradeston mills were among the largest in Scotland, and the explosion, in the instance mentioned, burst the dust-box. "There were other parts of the mill, where processes were going on, which produced large quantities of combustible dust, and this was the cause of the second and larger explosion, which blew out the gable ends, reduced the mill to ruins, and set the wood-work on fire."—*Glasgow Herald.*

We quote from the report of Professors MacAdam and Rankine as to the above fire, as follows. The report states :

"That the fire inflamed the finely divided dust which was diffused through the air in the exhaust conduits, and then passed on to the exhaust-box.

"That the sudden combustion of the dust diffused through the air would produce a very high temperature in the gaseous products of the combustion; and this would necessarily be accompanied by a great and sudden increase of pressure and bulk—constituting, in fact, an explosion.

* * * * * * * *

"We have ascertained, both from the evidence of eye-witnesses, and from printed aud published documents, that fire explosions similar in their cause and nature to that at the Tradeston mills, are accidents of ordinary occurrence in flour mills, especially since the introduction of the apparatus called the 'exhaust.' This fact, however, is little known to the general public, or indeed, to any one except those practically employed in working such mills; though it appears to be better known on the continent than in Great Britain, being mentioned in French and German treatises upon flour mills, but not, to our knowledge, in the standard English books on that subject.

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"Indeed, the readiness with which flame can be transmitted through an atmosphere of flour-dust and air, may be experimentally shown by showering some of the fine dust through a sieve placed a few feet above a gas jet or other flame. The combustion of the dusty atmosphere takes place with explosive rapidity; and, in some respects, resembles the flame traveling along a train of gunpowder, or flashing through a mixture of coal-gas and air.

"The flour-dust mainly consists of starch and gluten, accompanied by smaller proportions of gum, sugar and oil. All these substances are composed in greater part of carbon, hydrogen and oxygen, and when burned they yield carbonic acid, and carbonic oxide gases and water vapor. These gases necessarily tend to occupy a greater space than the dust and air which give rise to them, and this extra space demanded by the products of the combustion is much enlarged by the high temperature produced during the burning, and which tends greatly to expand the volume of the gases.

* * * * * * * *

"*We have determined, by direct experiment, that flour-dust diffused through the air contained in a box, and set fire to, explodes with violence, splits up the wood, bursts the sides, and lifts up the box even when ladened with heavy weights.* Indeed the mixture of flour dust and air is destructively explosive, and there can be no doubt that the fire-explosion of the dusty atmosphere in the exhaust-box in the Tradeston mills, which was eighteen feet long, nine feet high, and seven feet wide, would shatter the sides and force the accumulated fine dust lying on the shelves and floor out of the box into the atmosphere of the mill."

In September, 1864, the Mascoutah mills in Illinois, were burned. The miller approached the middlings chest for the purpose of jarring the middlings down, and the cloud of dust following the attempt, ignited at a small open lamp.

In 1868, Schmidt & Co's mill at St. Louis was destroyed in the same manner.

At Evansville, Ind., in April, 1875, a fire occurred in the flour mill of Iglehart Bros., caused by the ignition of flour-dust at the middlings chest.

At Dover, Kentucky, a breakage in one of the floors of the mill resulted in a shower of dust *which ignited at the boiler furnaces.*

In this connection it may be well to state that the boiler and furnaces of a flour mill should always be outside of the mill and *at the end farthest removed from the flour elevator*, as the draft of the furnaces would, naturally, have a tendency to draw in the flour-dust floating through the air.

A fire and explosion occurred in the Atlantic mills of Brooklyn, in 1869, caused by the ignition of flour-dust by an open light. The rope to the return slide in the bolting chest broke, and the miller, going with an open light to repair the damage, caused an explosion and fire, and was severely burned while trying to escape. Fortunately a vertical stand-pipe, with hose attached, enabled the employees to extinguish the fire.

We might add to the above list, but we think that it is sufficiently long to convince agents and millers of the great danger of open lights in a mill, near middlings-chests, feed-spouts, bolts, exhaust-boxes, or the stones themselves—in fact, anywhere outside of the office.

A Davies safety lamp should be used with the glass globe, as the latter is liable to be broken by an accident, at a most inopportune moment.

It has, at last, become apparent that companies must insist upon warranties in their policies as to the use of open lights.

The learned scientist, Dr. MacAdam, in an interesting paper recently read by him before the Royal Scottish Society of Arts, argues that flour mills, under some circumstances of carelessness, are almost as dangerous as gunpowder mills. He claims that in order to produce explosion, as well as fire, it is only necessary that the flour mixture be more or less confined within a given space, and that the fine, impalpable dust be diffused through the air in certain proportions. He advocates the separation of the different processes of flour mills, so that the entire property need not be destroyed by a single accident.

In entertaining applications for the insurance of flour mills, therefore, we desire our agents to notice whether both the owner and men employed recognize this danger from open lights. The stubborn skepticism of those claiming to be "practical" men, as to what they are pleased to term "theory," frequently causes us losses. We have been thus explicit on this important point and have devoted this much space to the statistics of fires, in the hope that it will enable our agents to convince the most skeptical as to the danger from open lights, and, also, as to the danger of permitting smoking in a mill, outside of the office. No reasonable man would decline to learn from the misfortunes of his fellows, and if any mill-owner persists in entertaining doubts on this important subject, *we have none*, and prefer to let him insure himself.

Avoid *over-taxed mills*, i. e., mills which are run beyond their average capacity. They are apt to break down or to burn from friction.

Grain is sometimes stored so that it covers slow-running journals. This is dangerous. Examine carefully all *journals on upper floors* and in dark, out-of-the-way places. They should be regularly oiled, and any greasy rags or cotton waste used about them should not be thrown carelessly aside, as is too often the case, thus endangering the mill. Metal receptacles for oily waste should be provided, and regularly emptied every night.

The over-loading of floors, either with flour or grain, is liable to cause sagging and throw shafting "out of line," resulting in friction and heated journals.

The moral hazard of large flour mills doing a "merchant" business—i. e., grinding to sell on owner's account—is often very serious, owing to the fluctuations of the market. A loss of a small amount in the market price of a barrel of flour, may entail a loss of hundreds of dollars per day, in the case of mills of large capacity. During seasons when mills are losing money, their owners are not apt to examine, carefully, for heated journals or other dangers, *especially if fully insured;* and it is needless to remind an agent that a neglected journal will as surely burn a mill as will the match of an incendiary.

A neglected wooden journal will soon take fire. Indeed, it may be seriously questioned if wooden journals are safe under any circumstances, or when running at any rate of speed, as, when not properly oiled, the slowest journals are certain to heat. Wooden journals, also, are generally in the upper stories of mills, where they are more liable to be neglected and more dangerous in case they ignite.

"MIDDLINGS PURIFIERS."—A new process of manufacture—that by what is known as the middlings purifiers—has produced a great change in the mills of certain sections, within a few years. By this process, which is a simple system of sieves, with exhausts to remove dust, chaff, etc., it is claimed that the "spring" wheats make a better grade of flour than was formerly produced from the best grades of "winter," as well as a larger quantity (16 lbs.) to the barrel. If this is true, the effect must be an important one for certain sections of country; the North-western states, Iowa, Minnesota, Wisconsin, and others, raising spring wheats, being greatly benefitted, while those raising winter wheats only, may labor under disadvantages. It must also be clear that a mill grinding spring wheat, without this process, cannot successfully compete with another using a middlings purifier.

The fact that by this process the flour is ground coarser, or, technically, "higher" than formerly—the stones not running so close as under the old process—where the aim was to prevent, as far as possible, any flour from passing into the middlings—might be a favorable feature of the physical hazard if the process did not require a greater number of stones to do the work, which may counterbalance it. The moral hazard, however, of a mill not using middlings purifiers might be so great as to outweigh all other considerations.

FIRE APPLIANCES IN FLOUR MILLS.—There can be little question—in view of the rapidity of flour mill fires, and the danger of explosions, rendering ordinary appliances, such as force-pumps and pails of water, almost useless—that *steam jets* and *sprinklers* would be the most efficient of all fire appliances for flour mills, not only on account of the thoroughness with which they extinguish fire, but also on account of the readiness with which they may be applied.

In view of the strong suction draft of the exhaust box, a steam jet opening into it would be an admirable precaution, and one which might be provided at little expense. The combustible character of flour-dust would be instantly neutralized by the volume of steam, which would find its way through elevators, chutes, spouts, exhaust boxes and other places, where water could not be applied, and would extinguish a fire, in a few moments.

In view of the desirable nature of these appliances, a deduction of *five per cent. of the rate* of a mill may be made for *steam jets* throughout the mill, and a like deduction for *sprinklers*—equivalent, in the case of a mill paying 5 per cent., for example, to a reduction to 4½ where both sprinklers and steam jets are provided (see pages 186 and 189).

The precaution of having the valves to steam jets and sprinklers outside of the rooms in which they are to be used, is particularly important in flour mills.

Grist Mills, or mills doing a custom work only, for surrounding farmers, with not over four run of stones, and with smut machines not above the first floor—are much better risks than merchant flour mills, as the neighbors and farmers are generally interested in their preservation and the risks are free from the moral hazard usually connected with the grinding of flour for the market. Submit surveys to Company for policies.

Flowers, Artificial, Stocks of. Decline. These are very damageable stocks and unprofitable to underwriters at obtainable rates.

Foundries. Submit application to Company. The amount insured on *patterns* should be very small—in no case exceeding twenty per cent. They are often entirely valueless before a fire, but are sometimes claimed to be valuable after they have been destroyed. Not over one-half the value claimed for them should be permitted to be insured. Whenever a machine becomes unsalable, the patterns of its different parts become worthless, and a moral hazard attaches to the insurance of them. Very small amounts should be taken on *flasks.* After a casting, flasks should not be piled up where they may endanger the building in case they should take fire, as they sometimes do, from being overheated or from concealed sparks.

The roofs or ceilings over casting floors should be high enough to prevent their being endangered, in case of a "boil" or explosion of molten metal. Examine, carefully, the *core ovens,* and see that no old wooden patterns, or other combustible materials, are piled over them. The cupola chimney should rise, at least, 12 feet above the roof, and where more than the ordinary amount of woodwork is done, carpenter shop rates should be charged, unless in a separate building, where it will not endanger the foundry.

For pattern shop, if more than two men employed and power used, when in main building, or exposing same, an additional rate should be charged.

Frame Rows and Ranges. See page 28.

Fruit Drying or Canning Establishments. Refer to Company.

Furniture Factories. See "Cabinet Shops."

Furniture, Stocks of. Lines should be small. In case of a fire, the damage is very great. The oiled and varnished surfaces of wood and the use of varnish, turpentine, benzine, etc., aid the rapid spread of a fire, and little salvage is made. A total loss is generally claimed on veneered furniture if the veneering is burned off. The use of benzine to prevent moths in upholstered furniture, of late years, has caused many fires, and the carelessness of employees in not properly disposing of oily rags used for rubbing off furniture, probably causes many more.

Furnaces. See "Blast Furnaces."

Gas Works. Submit to Company with full particulars as to whether gasolene or any product of petroleum is used.

Glass Works. Refer to Company, with full description. The packing-room and stock of straw should be safely arranged and where they are not exposed to fire or sparks. The kiln-drying of wood for fuel is not so common a fault as formerly, as wood is now seldom used for fuel. Where used, examine the kiln and report particulars to the Company.

Glove Factories. Refer to Company.

Glue Works are generally nuisances. Decline for this Company.

Grain in Elevators. See "Elevators."

Grist Mills. See "Flour Mills."

Greenhouses, Nurseries, etc. These risks are not desirable nor are risks on the plants contained in them. They are easily injured by smoke and water, and by the cold air, consequent upon the breakage of glass, in case of a fire in winter. Fires have been caused in greenhouses by the carrying of combustible material by rats to the vicinity of heating pipes.

Plants often have fancy and extravagant values, especially after a fire.

Hardware Manufactories. Refer to Company. Examine, carefully, the japanning oven. Where japanning is done to any extent, it should be in a thoroughly fire-proof room or in one outside of the building. The room for polishing cutlery should, also, be cut off from the main structure. The fine polishing dust resulting from the process, is peculiarly liable to fire. It should be blown out of the building through metal spouts or chutes. Where much wood-work is done, the rate should be graded accordingly, and the risk inspected with reference to the hazard of wood-working.

Hardware, Stocks of. These damage easily by both fire and water. The burning of paper wrappers, even where the fire is extinguished, injures the contents. The sale of kerosene, camphene, alcohol, turpentine, benzine and paints, is frequently carried on in connection with these stores, and adds very much to the hazard of some risks.

Hat Factories. Refer to the Company with full report as to drying, bleaching, etc.

Hay Presses. If near railroads or by steam-power, decline.

Hemp, Rope and Bagging Factories. Decline for this Company. Fires are frequent and generally rapid and thorough.

Hop Houses. Floors should be of stone, brick or earth—never of wood—the first story at least twelve feet high, and pipes four feet from drying floor and riveted at each joint, or wired with continuous wire fastened around the pipe at each joint. They should always enter good, brick flues and not pass out of a side wall, window or roof. The vessel in which brimstone is burned should be covered with perforated iron. Pipes and stoves should be dusted off, thoroughly, after each drying. No open lights should be permitted, and the use of kerosene should be prohibited, on account of its liability to vaporize in the high temperature. Barrels of water and pails are indispensable, and a constant watch should be maintained during the drying. It is well to inquire the age of the hop yard to ascertain its value Baling should be done by day-light only.

Hops baled and stored, when not exposed by the dry house, may be insured at short rates of two per cent.

Policies should apply as follows :

$........*on building;* $........*on hops;* $........ *on stove and pipe;* $........*on press and sacks, and* $........*on baled hops in store,* ....*feet from the dry-house.*

The following are the current rates at present :

During the	drying season,	one month,	not less than	$1.00
"	"	two months,	"	1.50
"	"	three months,	"	2.00

Fractional part of month to be charged same as full month.

Or 2½ per annum, including the drying season.

Hosiery Mills. (See "Woolen Mills.")

Hotels of large size, with stores on grade floor and steam laundries inside, decline for this Company, at the rates current in most localities.

Hotels having only a season patronage, Seaside Resorts, Summer Hotels, Sanitaria, etc. These risks have never been profitable to insurance companies and should be declined.

Hotel Furniture. Few classes of property are more liable to depreciation from wear, than hotel furniture. Second-hand, partly worn out hotel furniture, *especially if stored and not in use,* should be regarded as uninsurable for an amount above twenty per cent. of its cost when new. It is almost valueless and a serious moral hazard is sometimes involved in the insurance of it.

Houses of Refuge, Reform Schools, etc. Decline. There is a moral hazard connected with unruly inmates.

Hub and Spoke Factories. Refer to Company with full particulars.

Ice Houses and Contents. Decline; they are not desirable risks.

Iron Furnaces. See "Blast Furnaces."

India Rubber Manufactories. These have not been profitable to companies. Owing to the use of benzine, as a solvent, fires are frequent and rapid. Decline them for this Company. The use of alcohol and linseed oil in the manufacture of rubber cloth may be productive of fires in this class of risks.

A fire occurred in the Goodyear India Rubber Glove factory at Naugatuck, Conn., December 26th, 1872, caused by an explosion from electricity, to which these risks are peculiarly liable. A workman was engaged, at the time, in hanging rubber cloths in the steam vulcanizing chamber attached to the works. "Suddenly, without any warning, the fire streamed from his hands to the cloth, an explosion followed and, in a moment, the building was in flames. This cloth is treated with linseed oil and alcohol, and it is the theory of the superintendent that the vapor of the alcohol was ignited by the electric fire." For other fires from electricity, see "Causes of fires in Cotton and Woolen Mills."

Jails. Decline, unless of iron and stone or brick and with jailor's residence attached. Jails are exposures to other property, from the fact that such property is, sometimes, intentionally set on fire by outside friends of prisoners to create a diversion in their favor, in the hope that the excitement attending the fire and a removal of the prisoners may offer facilities for escape or rescue.

Jewelry Manufactories. Refer to Company.

Junk and Rag Stores. Decline. (See page 69).

Jute Factories. Decline.

Kerosene Refineries. Decline.

Kilns. See "Breweries," "Starch Factories," and "Dry Rooms," page 180.

Knitting Mills. See "Cotton and Woolen Mills."

Laboratories, Chemical. Refer to Company.

Laces and Embroideries. Decline stocks entirely composed of them.

Lampblack Manufactories. Decline.

Lard Oil Refineries. Refer to Company.

Lath Mills See "Saw Mills."

Linseed Oil Mills. Refer to Company. The press cloths, saturated with oil, should not be left in piles or heaps in the mill, as they, sometimes, ignite spontaneously.

Livery Stables. Small lines, at full rates, may be written with a specific amount on horses, and a limit of claim on any one, in case of loss; on rolling stock (with limit on each carriage and buggy), and on hay and feed. Where horses are brought home late at night, fires sometimes result from the careless use of lights by sleepy or intoxicated hostlers. As to the insurance of valuable horses, see page 92.

Lumber Yards. Those yards where lumber is piled high are poorer risks than where the piles are low, fires being difficult to extinguish when the piles are unusually high, and a difference of twenty-five cents may be made in the rate, when the owner will agree that no piles shall be over ten feet high. Hardwood yards may, also, be insured at lower rates than soft lumber. A difference may be made in favor of "timber yards" where none of the timber is less than 3 x 5 in size. In such yards the piles are, usually, low and the timber is piled solid, without stripping. It is also seldom thoroughly dry, and, therefore, does not ignite easily.

In case of a fire in a lumber yard, boards should be stood upon end against the piles to be protected, on the side towards the fire, with "broken" or "lap" joints and kept wet with the aid of the engines. This will prevent the escape of fire into the spaces between the lumber. Lumber being generally piled with small strips between the courses of boards, to admit of a circulation of air for purposes of drying and seasoning, a fire is difficult to extinguish when it once gains access to the interior of a high pile.

Lumber yards may be so exposed by planing or saw mills as to call for mill rates. Where the owner agrees that a clear space shall be maintained between the lumber and such an exposure, to obtain a concession in rate, a warranty should be written in the policy, as follows: "*Warranted by the assured, that a clear space of one hundred and fifty* (150) *feet shall be, at all times, preserved between the lumber hereby insured and the planing mill* (or other exposure, as the case may be), *or this policy shall be void.*"

If exposed by steam saw, planing, or shingle mill, a clear space of, at least, 150 feet should be maintained to constitute an unexposed risk. Recent fires indicate that even this space is not sufficient.

The continuous lines of lumber yards, so frequently to be found along water fronts, are not desirable risks, and rates, and particularly *lines*, should be governed accordingly.

Lumber in yards divided by streets or alleys of the width of forty feet or more, must, in all cases, be insured specifically, or the average clause inserted. When the average or co-insurance clause is inserted in policies on lumber, a deduction of twenty-five cents may be made from regular rates.

For a yard *well fenced*, a deduction in rate may be made.

Machine Shops. Refer to Company with particulars, especially as to any wood-work done. In some machine shops the amount of wood-work done is so considerable as to require special rating.

Carelessness in not properly disposing of oily cotton waste or rags used in wiping off machinery is observable some establishments. Metal receptacles should be provided and regularly emptied every night. The iron filings, lathe chips, etc., will cause spontaneous ignition if permitted to accumulate and to become rusty from dampness (see page 62.) The floors should, therefore, be kept clean. In nut and bolt works, especially, if saw dust is used for cleaning, the danger is increased. (See "Foundries.")

Malt Houses. See "Breweries."

Match Factories. Decline.

Morocco Factories. Refer to Company.

Mining Property, Miners' Dwellings, etc. See "Coal Mines."

Nail Works. Refer to Company.

Nurseries. Decline. See "Green Houses."

Oil-cloth Factories. Decline.

Oil Refineries. Decline.

Oil Tanks and Warehouses. Refer to Company.

Opera Houses. See "Theatres."

Panoramas, Dioramas, and other kindred exhibitions, decline.

Paper Mills. Refer to Company, with full survey. These risks would be much improved if the different processes were separated by fire walls and iron doors; the sliding, self-closing doors recommended on page 41 being the most desirable for the purpose. Such a division would, clearly, be more in the interest of the owner than of the company, as he could then insure the values of non-hazardous portions of his risk for specific amounts and lower rates than are now charged for the whole, thus securing the advantage of a saving in the matter of rate, but a still greater advantage in the fact that his entire property could not be destroyed, and his business brought to a stand-still, by a single, untoward accident.

In a mill so divided, the dusting and cutting of rags by machinery might be easily and at small cost, isolated. The storing of rags, more particularly of the lower grades, and the sorting of them—unless thoroughly dusted before going into the hands of the sorters—should be cut off by a wall and iron door. The sizing, also, should not be prepared (unless heated by steam) where it will endanger the mill. The process of making paper, after the rags or stock are in the bleach, is not a dangerous one; and where the drying of the paper is safely managed—it is generally dried by steam-pipes in the attic, which should be thoroughly examined to see that steam-pipes are, at no point, in contact with wood, and *that neither lights nor smoking is permitted*—a lower rate might be charged than is due to the more dangerous processes.

The use of cotton waste should render a risk uninsurable. (See "Cotton and Woolen Mill Fires.")

Examine as to the storage and handling of lime. (See page 57).

Straw Paper Mills and *Manilla Mills*, as usually managed, are not desirable risks at current and obtainable rates.

The stacks of straw should be, at least, 150 feet from the mill and only the straw required for each day's work should be permitted in or near the mill. The cutting of old rope, etc., should be separated from the mill, as before recommended.

Fire appliances.—These should be complete, as recommended in the case of special hazards, page 186. Steam-jets are, probably, the most effective of all fire appliances for paper mills, and should be provided in each room, but particularly in the dusting, cutting and drying rooms. A steam-jet in each dusting machine would be a desirable precaution, in view of the fires caused by matches or foreign substances passing through the machines.

Paper mills to be *standard* risks, should not be over three stories high.

The schedule for rating mills, furnished by the Company, would secure rates more nearly adequate than those current.

Paper Box Manufactories. See "Box Manufactories."

Pawnbrokers' Stocks. Decline. See "Prohibited Risks," page 91.

Patent Leather Manufactories. These burn frequently and are not desirable risks. Decline, at current rates and as generally constructed, for this Company.

Penitentiaries, Prisons and Prison Work-Shops. These have not been profitable to insurance companies. Work-shops and their contents—the goods of contractors in process of manufacture, etc.—are particularly objectionable. Such shops are frequently burned by convicts compelled to work in them. Decline them for this Company.

Piano Manufactories. Refer to Company, with full particulars as to fires, dry-room, etc.

Picture Frame Manufactories. Refer to Company. Decline large establishments, at current rates.

Planing Mills. These risks might be greatly improved. They are, as at present constructed, very liable to fire, and being generally filled with lumber, shavings and other combustible material—every beam, rafter and flat surface, where dust can find a resting place, being usually covered with a fine, combustible collection of material which ignites like tinder—they generally prove a total loss. The dust of a planing mill, like that of a tannery bark mill, will carry fire long after it is supposed to be extinguished. It is also very liable to ignite from a heated journal or from a spark of electricity from belts, and its collection in the quantities usual to some risks should be prevented, if possible, by avoiding the "shoulders" formed under eaves, and by squared timbers which afford resting places for it. The mill should be so constructed that it may be easily kept clean, the walls and ceilings being regularly swept down.

Planing mills are frequently set on fire by what are known as "back draughts" at the furnaces, which are hazards inseparable from the use of shavings for fuel. On rainy days, when the fuel is damp, the smoke is dense and heavier than the atmosphere, for the double reason that, on such days, the atmosphere, itself, is lighter than in fair weather, and the lumber to be planed is wet, the shavings used for fuel being, therefore, more or less damp and heavy. The draught of the chimneys, on such days, is insufficient to carry off the smoke and is often reversed, throwing the entire contents of the furnaces into the fire room. For this reason, the boilers should either be outside of the mill and in a room not communicating with it, or — if in a communicating, fire-proof room — so set that the *line of furnace feed may be, either in an opposite direction from the communication with the mill, or at right angles to it,* and not directly in line with the door, as, in the latter case, the fire might be emptied into the mill itself (see diagram and explanation, page 140). There should, properly, be no communication between the mill and the boiler room, which should be cut off by a good fire-wall. The shavings vault, or fuel room, should, if in or under the mill, be fire-proof, and so constructed, with iron coverings to all openings, that it can, in case of fire in it, be closed as nearly air-tight as possible. A steam-jet in it would instantly extinguish fire. Under no circumstances ought it to have a flue or chimney to the outer air, as such a chimney would supply the oxygen and draught for combustion and prevent the possibility of smothering a fire. The door between the shavings vault or fuel room and the boiler room should, also, open at *right angles to the furnace feed.* A mill, with the boilers inside and not in a fire-proof room, should be regarded as uninsurable.

Where boilers are underground, and where the space above them is used for piling lumber or for storing shavings, it is almost impossible to make them safe.

Where shavings are conveyed to the furnaces by chutes or conveyers, with blowers, the conveyers should be of metal and never of wood, and they should empty into the shavings vault or fuel room and never into the *fire room*, and should be closed when not in use.

The shavings should be removed, as fast as made, by blowers, and if not so removed, should all be gathered into the vault at night, and the doors to the vault securely closed. If it is impossible to get all of them in, they should be swept up into a pile, the surface of which should be thoroughly wetted down with a hose. Loose shavings, scattered over the floor, or about the entrances of the mill, are more dangerous than those in piles. In case of a fire, it will seldom be found that a large pile of shavings is entirely burned up. As a rule, the surface only is burned off and the fire goes out for want of air. The rule of the mill, therefore, should be to have all shavings swept up at night, and the hose well played over the pile and around the doorways, to prevent dang from castaway cigars or matches of passers by or from the intentional acts of malicious persons.

Most of the machinery of a planing mill—the cylinders of planing machines, tongueing and grooving cutter-heads, circular saws, etc., run at great speed, and journals of the best and hardest metal, are, frequently, melted by friction. The boys or other low-priced hands employed, in some mills, to tend small circular saws, seldom think of examining the bearings of mandrels to see if they are thoroughly cool before going home, and, for this reason, some reliable person should make it his duty to regularly examine all journals after shutting down for the day.

The watchman should commence his watch as soon as the hands leave, and should be provided with a closed globe lantern.

A planing mill might be so constructed as to be insured at four per cent. with more profit to underwriters than, as generally constructed, at eight per cent.

A mill built upon the following plan, might be regarded as a standard risk.

STANDARD PLANING MILL.

Building.—Brick or stone walls, 18 inches thick, not over 5000 square feet of area (say 50 x 100), one story high, roof of metal or slate, or shingles laid in mortar, and floor of earth, brick or stone or heavy two-inch (or three-inch) plank, *laid upon the earth, without any intermediate space.* Such a floor is both safe and economical. The main building should be used for planing and sawing purposes only—the dry-room, boiler-room, sash and blind making and painting should be in separate, fire-proof divisions, not endangering the mill. The shavings vault or fuel room should be so constructed as not to expose the mill, and with a steam-jet (valve outside) and the shavings to be removed from the machines to the fuel room, as fast as made, by blowers and metallic conductors.

Heating.—None except in office.

Lighting.—Mill to run by daylight only.

Boiler Room.—To be fire-proof and not endangering the mill. Earth, brick or stone floor and fire-proof roof. Fireman to have no other duties than attending to the boiler, and the boilers to be so arranged that nothing combustible can be piled or deposited over them, as recommended on page 182.

Boiler Chimney.—Of brick, double walls (see page 182), plastered inside, to be not less than twenty feet higher than surrounding roofs, *and with a spark arrester.*

Fire Appliances.—Force pump with sufficient 2½ inch hose attached, to reach all parts of the mill. Steam-jets to each room, including the shavings vault and dry-room—valves to be outside of the room, in each case. Sprinklers in main mill, and casks of water and pails to each room.

Watchman with Watch-Clock or Watch and using a covered light, burning a safe oil.

Regulations.—Mill to be cleaned up every night, all the shavings to be gathered into the fuel-room and the mill to be well wet down, especially about the door-ways. The mill to be securely closed so that nothing can be thrown in from outside.

Charge for deficiencies from such a standard, as follows :

Basis Rate	$4.00
If Frame Walls, add.	1.00
Note.—This charge does not include that for shingle roof.	
Height.—Each story over one (if over two, decline)	.25
Area.—Each 1000 sq. feet, or fraction thereof, over standard.	.25
Roof.—Composition 25 cents, shingle	.50
Access to Roof.—If over one story and no scuttle	.10
Ladders.—None	.10
Floor.—Not according to standard	.10
Heating.—Not permitted outside office.	
Watchman.—If None	.50
If watchman but no watch clock	.25

Boiler Room.—Fire-proof, but communicating with MILL by door, opening in an *opposite direction from furnace feed or at right angles to it*—with iron door	.50
If without iron door	1.00
If communicating by door opening in *direct line of furnace feed,* with iron door	1.00
If without iron door—*uninsurable.*	
Communicating with FUEL ROOM by door *opening at right angles to furnace feed or in an opposite direction from it*—if with iron door	.25
If without iron door	.50
Communicating with fuel-room by door opening *in direct line of furnace feed*—if with iron door	.50
If without iron door	1.00
Shavings or Fuel Room.—According to standard—of brick, with iron covers to all openings, whether for the admission or removal of shavings—if not so constructed, to be outside of mill, and where its burning would not endanger the mill. If without steam-jet	.10
Blowers.—If none to remove shavings to fuel room	.25
Boiler Chimney.—Of iron, through roof	1.00
If metal stack on brick or stone base rising, at least, 5 ft. above boiler-house roof, not less than	.50
No spark arrester	.25
Dry-Room.—To be cut off and according to standard recommended on page 180	
Force Pump and 2½ inch Hose.—If without, add	.25
Casks and Pails.—Water salted—in every room. If without	.25*
Sprinklers.—None	.25
Steam-jet.—In main mill, shavings vault, dry-room; if none, charge for *each room*	.10
Sash and Blind Making	1.00

Lighting.—Two-tenths ($\frac{2}{10}$) of rate per hour.

Night-Work.—In view of the combustible nature of the materials and dust of planing mills, it is a serious question as to whether any obtainable rate is adequate for night work. Not less than double rates should be charged for mills running at night, and

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This charge intended to secure so important and inexpensive a precaution.

short rates for short periods. Mills running only a portion of the evening should pay at the rate of two-tenths ($\frac{2}{10}$ or $\frac{1}{5}$) of the rate for each hour of night-work; for example, a mill rated at five per cent. running two hours every night, should pay $\frac{4}{10}$ of 5 per cent. extra, and, therefore, if desiring the privilege for a month, should pay short rates of 2 per cent.—or 40 cents per $100.

The rate should be higher, in proportion, for running part of the night than for running the whole, as the presence of workmen, throughout the night, might secure the discovery and extinction of fire, whereas, in the case of night-work for a few hours only, the mill would be left, after a long day's work, with heated journals and in the worst possible condition for fire.

Covered lights should be a stipulation in the policy.

If by Water Power deduct one-fifth.

Exposure.—Charge according to hazard.

While substantial brick or stone mills are more desirable, on many accounts, than frame structures, it should be remembered that wooden buildings burn off more rapidly and with less damage to substantial contents, such as planing machines, engines, boilers, pumps, etc., and too great a difference in rate should not be made in favor of brick mills for this reason. *Refer applications for insurance of planing mills to the Company, in all cases.*

Plow Manufactories. See "Agricultural Implement Manufactories." Refer to Company.

Plaster Mills. Refer to Company.

Pork Houses. Refer to Company, in advance of the season, for approval, after which policies may be written by the agent.

CUTTING AND PACKING.—Notice whether safe lights are used. Cutting and packing is often done at night and hands are, frequently, careless. Decline any risks where workmen are permitted to use, for candlesticks, such substitutes as pieces of meat or wood, empty bottles or iron nuts.

LARD RENDERING.—If by kettles, they should be well set in masonry, the tops of kettles being one inch higher than the surrounding brick-work, to prevent the piling up of fat beyond the capacity of the kettles. The wall should be covered with an iron plate having a guard around it to prevent the escape of grease.

Metal extinguishers should be suspended over the kettles to be let down, in case of fire. Tight-fitting covers are better extinguishers for burning grease than water. No wood-work should be exposed in the lard room, and the ceilings should be, at least, ten feet above tops of kettles, the floor being of earth, brick or stone.

Fires should be carefully extinguished under all the kettles, at night, to prevent their flaming up again, during the night, and setting fire to the grease. Carbonic acid gas extinguishers are valuable for extinguishing burning grease and should be provided.

Where rendering is done by kettles, the *flues* to the furnaces should be carefully built, the walls being, at least, 12 inches thick, plastered inside and built from the ground.

Rendering by steam, although regarded as being safer than by kettles, has its dangers also. Grease, under a comparatively low pressure, generates a very explosive gas, readily ignited by contact with flame. For this reason, no lights should be permitted in the lard room, and proper ventilation should be provided to permit the escape of such gases.

SMOKING.—This should be entirely outside of main building or cut off by a fire wall, rising through and above roof, with iron doors, which may be improved by having "eyesights" or apertures in them, to enable the man in charge, or smoker, to examine the interior, without opening the door and admitting air. Nozzle holes, also, for the use of hose or, better still, for the use of carbonic acid gas extinguishers, in case of fire, should be provided.

At a distance of not less than nine feet above the fires, and three feet below the meat, a perforated iron floor should be provided, which will serve the double purpose of *preventing the falling of meat on the fires* and of distributing the ascending smoke so that the meat in all parts of the room will be reached. The fires should be so protected that the drippings of meat cannot fall on them. *Ventilation must be provided* to prevent the accumulation of explosive gases evolved in smoke houses. It is well known to intelligent and experienced pork packers, that meat is better cured *by a current of smoke* than by *confined* smoke, and that no saving is secured by the absence of proper ventilation.

Numerous fires have occurred from the gases formed in smoke-houses. A notable instance was the explosion in the smoke-house of Muldoon & Sharp, in St. Louis. A fire was discovered near the centre of the meat, but it was merely smoking or smoldering. Water was introduced and an explosion of the gases followed—windows and brick-work being shattered. "Simultaneously with the report (probably from the admission of air) the flames arose in immense volumes, where before had been only dense, black smoke."

The origin of this fire was attributed to the *drippings from hams upon the fires.*

The "singeing" process of removing the hair from hogs is frequently unsafe. When it is a feature of the risk, it should, in all cases, be done outside—the straw used not being kept where it would expose the building.

SLAUGHTERING.—This should be so managed as not to be a nuisance to those owning property in the vicinity.

In insuring pork houses, it is unnecessary to remind agents that they should not write *annual* policies, at the current rates, for the full line of the Company, upon the building or stock, thus cutting the Company off from the more profitable *short-rate* business on stock.

When necessary to write an annual policy for a small amount, *it should expressly prohibit all of the privileges* of slaughtering, rendering and smoking, in order to insure their being paid for, when the season commences. It is necessary to prohibit them expressly, because a policy on a building privileged to be occupied as a "pork house," might be claimed to permit, inferentially, the processes incidental to a "pork house." Any policy, therefore, not expressly granting the privileges, for the usual premium charge, *should expressly prohibit them*, as follows, "*privileges of smoking, rendering and slaughtering not permitted under this policy.*"

When privileges are granted, the following are the rules of the National Board:

"Policies, in all cases, to limit the time of privileges in writing, or when not granted, written stipulation to that effect to be made.

"All privileges granted must define the period for which such privileges are granted, by an explicit provision, giving beginning and expiration of the period, in form substantially as follows:

"In consideration of $......privilege is granted for......days ....privileges (here insert slaughtering, rendering or smoking, as the case may be), beginning on the......day of...... 187...and ending on the......day of......187...at noon."

Potteries. Refer to Company with full particulars as to drying ovens, storage of wood, etc.

Printing Offices. These risks are, generally, in the upper stories of buildings and, therefore, little salvage is made by removal, in case of a fire. Type should be insured specifically and for small amounts, as it is claimed to be worthless if "pied." A specific amount, also, should be insured on lithographic stones (if any) and on presses. Printers are often careless in the use of benzine for cleaning type, and also, as to oily waste, rags, paper cuttings, etc. Not over one quart of benzine should be permitted.

Electrotype or stereotype plates of books and other publications, which have no sale, are worthless and should not be insured.

Print Works. See "Bleacheries," and "Woolen and Cotton Mills."

Prisons, Houses of Refuge, etc. See "Penitentiaries," "Jails," "Houses of Refuge."

Public Halls with Scenery. Decline buildings and stocks contained in them, except where very small and used only occasionally, in which case refer to Company. (See "Theatres.")

Quartz Mills. Refer to Company.

Railroad Property, Bridges, Depots, Round Houses, etc. Refer to Company. The desirability of these risks depends largely upon whether the railroad company insures all of such property or only exceptional risks, and whether it carries a large or very small amount of insurance. Railroad companies are apt to seek forms of policies so ingeniously worded that a very small amount of insurance will protect a large amount of property.

Rags, Stocks of. Unless forming a reasonable proportion of paper store stocks, decline.

Rectifying. If by fire or steam-heat, decline.

Reform Schools. See "Houses of Refuge."

Rolling Mills. Refer to Company. Boilers and engines connected with this class of risks may be insured with machinery, without separate specifications in policies, although specific insurance is, of course, desirable.

Roofing Works. Decline.

Rope Walks. Decline.

Rubber Works. See "India Rubber Factories."

Salt Blocks and Works. Refer to Company. If buildings are old and dilapidated, decline. Give full particulars of any saw-mill exposure they may have.

Sash and Blind Manufactories. Decline. See "Planing Mills."

Saw Mills. A serious moral hazard attaches to all mills which have exhausted the timber convenient to them, if the cost of procuring logs is such as to prevent their competing successfully with mills more favorably located. A moral hazard is, sometimes, connected with water-power mills, also, when the supply of water is not sufficient to keep them in constant operation. Examine, carefully, all boiler rooms, to see that combustible material is not stored over the boilers, and inquire as to *journals under floors.* They are objectionable as they are liable to be covered up and neglected.

Examine as to storage of lubricating oils, and see page 181 for an instance where oil was stored over the steam-boilers.

Decline all applications for insurance on dilapidated, unpainted mills, with old machinery and worn-out boilers. There are many such. *Roof sprinklers* would be desirable fire appliances for saw mills. (See page 189.) A roof-sprinkler saved a large mill at Williamsport, Pa., in 1876, the fire burning lumber near the mill without igniting it.

In this case the sprinkler-pipe ran along the *ridge of the roof* and *under the eaves, on each side,* and kept the roof and sides of the mill thoroughly wet.

Where the boiler-house of a saw mill is built of brick or stone, with iron roof or girders, neither adjoining nor communicating with mill building, no charge need be made for metal stack.

Schools. See "Academies."

Second Hand Stocks of furniture, clothing, etc., decline. Prices are never satisfactory in adjustments.

Sewing Machine Manufactories. Refer to Company with full particulars as to wood-work done, dry rooms, etc. (See page 180.)

Shingle and Lath Mills are not desirable risks. Decline them.

Ship Building, Ship Yards. Refer to Company.

Shoe Factories. These have not been profitable risks, especially since the very general use of benzine or gutta percha cement. Only one day's supply of this dangerous material should be permitted, by the policy, in the buildings insured, and all policies should contain a clause expressly prohibiting its use, when not used. The use of lampblack may cause fires from spontaneous combustion if mixed with oil. Examine for carelessness as to fires and lights.

Shoddy Mills. Decline. See "Woolen Mills."

Silk Mills. Refer to Company.

Skating Rinks. Decline.

Slaughter Houses. See "Pork Houses." Decline if "nuisances."

Smoke Houses. See "Pork Houses."

Soap and Candle Factories. Decline. See "Candle and Soap Factories."

Spice Mills. Decline.

Stables. See "Livery Stables."

Starch Factories. These risks have not been profitable to Companies. The drying of starch is a dangerous process and should be completely isolated. Fires in them are peculiarly rapid and thorough. The hazard of a drying kiln is not ratable and we regard them and their contents as uninsurable.

The flour-mill or grinding risk should be examined, in accordance with instructions as to flour mills. If dry kilns are completely outside of the factory (to communicate, even with iron doors, is objectionable), submit survey to Company. Decline potato starch factories.

Steamboats. Refer to Company. Avoid old boats and boats running at a loss to owners or on a line where competition exists, or boats laid up in consequence of competition. They are sometimes burned by rival interests. In applying to Company for insurance of steamboats, advise as to *age*, *value*, *ownership*, *fuel burned*, *general character of freight carried*, *route* (which should be limited in the policy), and whether paying investment to owners.

Steel Works. Refer to Company.

Stove Works. See "Foundries,"

Straw Goods Manufactories. Refer to Company, with full particulars as to bleaching, drying, etc.

Sugar Refineries. Refer to Company.

Tack Factories. Refer to Company.

Tanneries require the most intelligent examination and supervision to escape the moral hazard attaching to many risks. Physically, they are much improved by the complete isolation of the bark mill and boiler room, and by the stacking of bark so that it will not expose the tannery or be exposed to locomotive or other sparks. Bark-dust is very retentive of fire, in fact, it is almost impossible to extinguish a fire in it when once kindled and after a fire is supposed to be out it may conceal and carry sparks for hours. No lights, fires, or smoking should be permitted, and where spent bark is used for fuel, under the boilers, the boiler-room, as before stated, should not expose the tannery. Care should be taken to arrange the conveyers of bark to the boiler rooms so that they may not prove conveyers of flame, in case of fire. The boiler chimney should be of brick, as recommended on page 182, and should be provided with a spark arrester. Care should, also, be observed in the storage of lime. The loosening of wool from skins is sometimes dangerously managed. A serious moral hazard sometimes results when the supply of bark has been exhausted, necessitating its transportation, at great expense, from a distance. *Refer all applications for insuring tanneries to the Company.*

Theatres. Decline. When these risks are constructed in accordance with obvious rules of safety, we may begin to write them; but as, at present, constructed, they are unprofitable risks. The day will, probably, come when theatre and opera houses will be required, by law, to be securely divided into two separate risks, by a fire-wall running through the roof—effectually cutting off the stage, dressing rooms, carpenter shop, etc., from the auditorium, a fire-proof curtain or drop door being so constructed as to cut off all communication between the stage with its scenery, and the rest of the building.

Doors to places of exit should always *swing outwards*, and each section of seats should have a separate exit, to avoid the crowding incidental to an alarm of fire and a panic on the part of the inmates.

The precautions observed in Paris, might, with profit, be followed here—those of permitting no performance to take place without a small engine stationed on the stage, with two or more experienced firemen in attendance.

Some of the fires in this class of risks may be due to the spontaneous combustion of scenery canvas, painted in oil colors, and rolled up when not in use. (See page 61.) While in use, exposed to currents of air, it would not be dangerous, except from its liability to ignite upon contact with flame, but when rolled up or covered up, in any way, so as to confine the heat generated spontaneously, it would be very liable to burn.

The fact that so long ago as 1830 Mr. Braidwood, Superintendent of the London Fire Brigade, recommended the simple but important precaution of cutting off the stage, with its accompaniments of dressing rooms, storage rooms, paint room and carpenter shop, from the auditorium, by a fire-wall and iron curtain, and the fact that, up to this time, there are only one or two theatres so protected, shows how little attention is usually paid to the opinions and suggestions of experienced and practical firemen. If these curtains should be double, with an air space between the two, they would be better, and, besides, in case one should not happen to work, the other might. It should be the business of a particular individual, regularly and judiciously stationed for the purpose, to attend to the letting down of the curtains, in case of fire, and they should be so arranged as to be closed *from the auditorium side.* Egress may be easily provided from the stage and dressing rooms for actors and employees. The simple provision of sprinkler pipes between these curtains, so arranged over the top of the arch and down the sides as to form, literally, *a curtain of water*, in case of a fire, would not only keep the iron from warping, but prevent the escape of smoke and gases into the auditorium. Such a provision would be somewhat similar to the spray of water lately invented and used in connection with a hose pipe, to enable firemen to approach fire, without danger or discomfort.

A system of sprinklers above the scenery and woodwork of the stage would, also, be very desirable, as it would, probably, extinguish a fire almost instantly.

The draught formed by opening the doors, for the exit of an audience, would have the tendency to draw the smoke, gases and flame of a stage fire into the auditorium (as in the case of the Brooklyn Theatre), to the great danger of those who might, otherwise, escape. For this reason, the wall should extend through the roof, effectually cutting off all communication between the stage and *the empty space or attic, usually left between the ceiling of the auditorium and the roof.*

The terrible disaster in the Brooklyn Theatre, in December, 1876, by which over three hundred human beings perished, would indicate that the *floors and supports of halls and staircases* should be much stronger than the other portions of the building, and that the strength required by law to bear the safe loading (see page 36) is not sufficient, in view of *the vibration and sudden strain* caused by a rush and panic of the inmates.

All passage-ways, hall-ways, etc., should *gradually widen* to the point of exit, sharp angles and corners being avoided. This simple precaution would prevent the choking of a passage by a crowd, as it would be impossible to block up a passage-way so constructed. Under no circumstances, should a hall-way be narrower, at any point in its length, than at its exit beginning. Strong iron railings, *without balustrades*,* should be provided on each side of all staircases, as they would assist in preventing the falling of individuals and other ill effects of a rush.

While all appliances for the control of a fire and its extinction and for the escape of the audience, however, are desirable and imperative, it should be remembered that precautions for *preventing fire* are still more important, and, to this end, the scenery and wood-work of the stage, instead of being highly inflammable, as is now, almost universally, the case, *should be rendered incombustible* by preparing them with simple, inexpensive and well-known chemicals.

All of the appointments of the stage—the scenery (often painted with oil paints), borders and wood-work—are of the most inflammable description. In some cases, benzine actually being used, and purchased by the barrel. It is unnecessary to state that where this dangerous material is used on scenery, no provision of wire screens to protect foot and border lights, would prevent fire, as the gas generated by the benzine would, itself, seek the gas jet and ignite through the wire.

Among the chemicals recommended for the purpose of rendering scenery uninflammable, may be mentioned borax, alum and the tungstates of sodium or potassium.

The canvas, ropes, etc., may be soaked in a solution of tungstate of soda (one bucket full of the salt to seven buckets full of hot water) for thirty minutes, and when thoroughly dry, in a solution of silicate of soda, commonly known as "*soluble glass*," diluted in the same proportion. The same application will render wood-work safe, but it is claimed that a solution of tungstate of molybdenum is better for the purpose.

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* Balustrades are objectionable as, in case of a leg or foot becoming caught in them, they might lead to an obstruction of the passage.

Phosphate of ammonia is, also, recommended for scenery. It requires only one process and is, therefore, more convenient than the tungstates.

Tin, Copper and Sheet Iron Works. Examine as to fires used, storage of charcoal (see page 64) and report. The use of furnaces burning gasolene, for heating soldering irons, is dangerous and should be prohibited.

Tobacco Barns. Have not been profitable risks. If with stove they are seldom safe and the only safe rule is to decline all barns using fire-heat. When no fire-heat is used, tobacco in them may be insured for small amounts, for reliable parties. A serious moral hazard, sometimes, attaches if the crop is damaged. Insurance should be light—never over one-half the value.

Tobacco Factories. Refer to Company. The sweat-room should be outside and liquorice kettle safely arranged on the ground floor. Presses should be insured specifically and separately from machinery or fixtures. If sweating is done inside, an extra rate should be charged and, also, if fine-cut or smoking tobacco is manufactured.

Tobacco Stemmeries. When once on fire, are seldom saved, everything being as dry as tinder. No smoking or lights should be permitted, and casks of water and pails should be liberally provided. Refer to Company.

Annual rate on stocks, same as on buildings.

Short risks on stocks may be written somewhat less than annual rates. Short rates to be charged in all cases.

Short risks on tobacco in hogsheads may be written somewhat less than building rates; short rates to be charged, in all cases.

Trunk Factories. If wood-work is done, decline.

Type Foundries. Refer to Company.

Varnish Factories. Decline.

Vinegar Works. Decline.

Wagon and Wheelwright Shops. Refer to Company with full particulars as to size, number of men employed, etc. Examine all stoves and their pipes, and as to care in the use of paints, linseed oil, etc.

Watch Manufactories. Refer to Company.

White Lead Works. Refer to Company. An additional charge of not less than one per cent. to be made where boiling of oil is done in the building, or within 25 feet of the same, and wherever artificial heat is used in the manufacture of white lead, an additional rate should be charged.

Willow Ware Factories, or stocks composed wholly or largely of willow ware, are not desirable risks, at current rates. Such merchandise damages easily by smoke.

Wool Scouring Risks. Decline. Many fires in them are, probably, due to the use of bleached palm oil or cotton seed oil on the scoured wool.

Wood Working Risks, generally. Refer to Company. See "Planing Mills," "Saw Mills," "Furniture Manufactories," etc.

Wooden Ware Factories. Refer to Company with full particulars as to dry-rooms, if any, and number of men employed. The current rates are not adequate.

Woolen and Cotton Mills, Carpet Factories, Knitting Mills, Worsted Factories, etc. Submit survey on the blank furnished by the Company. Do not use blanks of other companies. These risks require very careful inspection. If the picker of a cotton mill is inside the mill, and not in a fire-proof room, *decline the application.*

Of late years, the use of shoddy has resulted in many fires. It is often made of rags and, containing dangerous oils—the rags being oiled before they are torn into fibre—is very liable to ignite spontaneously. Some kinds of shoddy, made from the clippings of clean wool, are claimed to be safe, but when the manufacturer buys his shoddy he has no means of ascertaining its dangerous character and it is best to decline the risk. What are known as "shoddy mills"—manufacturing shoddy for other establishments—are not to be entertained for this Company.

The following pages have been printed in pamphlet form, and will be furnished to agents for distribution among their customers, if desired.

HOW TO INSPECT COTTON AND WOOLEN MILLS.

SINCE the inventions of Hargreaves, Crompton, Cartwright and Peel, great improvements have been made in cotton and woolen mills, but still more important has been the progress in the direction of the prevention and extinction of fire. The first-class cotton or woolen mill of to-day is a very different fire risk from that of even twenty years ago. There is, however, still a large number of mill owners who are either ignorant or indifferent as to the truth of certain well established and generally conceded facts—such, for instance, as that steam-pipes will ignite wood; that cotton or woolen waste will burn spontaneously and should not be left in the mill over night, that, consequently, extreme cleanliness should be observed; and that the picker-room being, as statistics show, the most dangerous part of the risk—especially in cotton mills—should always be outside of the mill, and so protected that, in case of its burning, it will not endanger the mill itself.

We shall endeavor, by placing before you such statistics of fires as may not exact too much space, to help you to convince those manufacturers who still entertain doubts on these important points. Failing in this well-meant attempt, however, we think no obtainable rate should be a sufficient inducement for a company to insure the mills of such owners as may prefer to wait until the more expensive teaching of personal experience has demonstrated the truth of our statements. First, then, as to

STEAM-PIPES AND THEIR DANGER.

This is a subject to which we desire particularly to call your attention. It has at last become a serious question whether stoves—because of their admitted danger and the consequent care in their management—are not safer than steam-pipes,where the manufacturer entertains doubts as to the ignition of wood by them when in contact with it. Unfortunately the causes of most fires are never discovered. All traces are lost in the ruin which follows the conflagration; but sufficient statistics of well authenticated cases of fires from steam-pipes have been secured to convince the most skeptical on this point. We give a list of some of them with the name, location and date of fire, in the hope that our pains may not be without reward. It must be borne in mind, however, that it is difficult to catch such a dangerous incendiary "red handed in the act." Our list might be larger.

E. M. Williams' Woolen Mill at Yantic, Conn., Feb. 27th, 1869, from wool in contact with steam coil. Loss $8,500.

Jones & Loughlin's American Iron Works at Pittsburgh, Pa., May 23d, 1870. Fire in a wooden box containing a steam-pipe packed in sawdust. A clear case—discovered in the daytime.

Briggs House, Chicago, Dec. 1st, 1860. Steam-pipes in drying room of laundry in contact with wood. Discovered and extinguished.

Store of Wm. H. Watson, cor. Park Place and Church Streets, New York, Feb., 1861. Steam-heating pipes.

Dwelling House of Beach Vanderpool, Esq., in Washington Place, Newark, N. J., Feb. 27th, 1872. Steam-heating pipes in a wood-box. Discovered and extinguished in the daytime A clear case. This is a first-class, brick dwelling costing $75,000.

Utica Steam Cotton Co., Utica, N. Y., Jan. 9th, 1872. Fire discovered running over two laps of cotton in contact with steam-pipes. A clear case of the ignition of *clean cotton.*

Republican News Office, Geo. Knapp & Co., S. E. cor. Third and Chestnut Streets, St. Louis, Mo., Dec. 1874. Main pipe leading to top of building.

Oneco Mills, Sterling, Conn. Steam-pipe packed in charcoal.

Pacific Mills, in wool sorting room, from placing fleeces over steam-pipes to warm for opening. April 15th, 1864.

Lonsdale Mill, R. I. Steam-pipe packed in sawdust. Box on fire a number of times.

Androscoggin Mills. From oily overalls hung to dry over steam-pipes. April, 1863.

St. Nicholas Hotel, New York. Woodwork in contact with steam-pipes. Discovered before loss.

Metropolitan Hotel, New York. Woodwork in contact with pipes.

It will be seen that several fires occurred from the use of charcoal, sawdust, etc., for packing to prevent loss of steam by radiation and condensation. These substances *are not safe for the purpose.* Prof. Tyndall recommends powdered gypsum as a safe, inexpensive and equally efficacious substitute.

A fire was discovered in the mill of Mr. Eddy of Fall

River and its fortunate extinction may serve to convince manufacturers of a danger from steam-pipes not before thought of.

The gentleman in question had placed a pine board in his wool-drying room, about three or four inches above the steam-pipes, to prevent wool from falling on them. A fire ensued, causing a loss of several thousand dollars before being extinguished, and a careful examination as to its origin satisfied Mr. Eddy that the heat of the pipes *had distilled the pitch from several pine knots in the board*, which dropping on the pipes below had caused the combustion.

We need not suggest the lesson of this fire, or the necessity of following steam-pipes throughout their length to see that *where they pass under wood-work—as when suspended below ceilings or floor timbers, they are not so near as to endanger the mill* in the manner above described ; nor need we add that the general use of the Southern or yellow pine in the flooring or girders of buildings (the knots of which yield their pitch to a very moderate heat) will justify a thorough scrutiny of the wood-work, from time to time, to guard against fire.

The well-known tendency of lumps of charcoal to take fire spontaneously if moistened and then subjected to a slight drying heat, (less than that of boiling water), suggests another way in which steampipes may set fire to wood We give an interesting account of an experiment by Professor C. T. Jackson (the well-known discoverer of etherization) in his own words. Not less interesting than the narrative is his very clear explanation of the phenomenon and its cause:

"Three times," he says, "I have set fire to charcoal at temperatures below that of boiling water. My first experiment or observation was accidental. I was preparing, while at Bangor, Me., for a lecture, in which I had occasion to show an artificial volcano. I took a tray filled with gunpowder and laid it on the stove to dry. I then took a paper of pulverized charcoal, such as is sold by the apothecaries for tooth-powder, the charcoal being wrapped in white paper, and placed it on the top of the gunpowder which was being dried upon the stove. Having occasion to go out, I took off the paper of charcoal and laid it on the table. When I came back in about twenty minutes, I observed the paper smoking. The charcoal was completely consumed. During all this time, the gunpowder remained on the stove unexploded.

"My next observation was this: While at work in my laboratory, I had occasion to use a piece of charcoal for blow-pipe experiments. I went down into my cellar and brought up a piece of light, fine, round charcoal, suited for that purpose. It was damp. I laid it on the top of a column stove to dry, directly beside a tin pan containing water, which was not boiling, and never did boil there. I took the charcoal off the stove and laid it on my table. A short time afterward, I discovered that it was on fire all through the piece. I laid it aside, and it burned entirely to ashes. The theory of the ignition of the charcoal under these circumstances struck me at once. Charcoal has wonderful porosity: it has the power of analyzing air, and absorbing the oxygen with comparatively little of its nitrogen. The pores of the charcoal were previously filled with moisture. Drying expelled this moisture. The oxygen of the air was condensed in the charcoal, taking the place of the moisture. The condensation of the oxygen produced sufficient heat to ignite the charcoal. I repeated this experiment again intentionally, watching it carefully, and with the same result."

We have never found any manufacturer or practical mechanic who denied that steam-pipes would *reduce wood to a condition of charcoal*—all admit this. The wooden covering to engine cylinders after a few years of service, or any other wood in contact with steam-pipes for a sufficient length of time, will give evidence enough in proof of this if examined. It is needless to suggest the numerous ways in which these charred surfaces may become moistened and reduced to precisely the same conditions as the charcoal in the experiment above described, after which the pipes themselves supply the requisite degree of heat to fulfil all of the conditions necessary to produce combustion.

Steam-pipes are particularly dangerous *where they pass for any distance out of sight between floors or through hollow plastered partitions.* The tendency of rats and mice to build their nests near them, on account of the warmth they afford, is well known, and they are, for this reason, often in actual contact with the most dangerous rubbish, such as oily or greasy rags, cotton or woolen waste, occasioning fires whose origin is never known. In such cases the steam-pipes if they do not actually ignite the combustible material, become, it must be conceded, the direct promoters of spontaneous combustion. They should, if for this reason alone, be always in plain sight and exposed to view throughout the mill, and where they pass through floors should be protected by metal thimbles or flanges, the inner rim of which should be furnished with points to admit of a constant current of air.

Steam-pipes have been known to set fire to wood at a distance of three hundred feet from the boiler. Hot water pipes were claimed by Mr. Braidwood, of the London Fire Brigade, to be dangerous if in contact with wood, as early as 1846. The argument that the temperature of boiling water is only 212°, and therefore not hot enough to ignite wood, falls to the ground in view of the fact that when pipes are carried to a height of sixty or seventy feet, as in the case of large buildings, the water of the boilers is under a pressure of *two or three atmospheres instead of one.*

If stoves are used they should be in charge of some one person to see that fires are safely out at night. Pipes should not pass out through a side wall or roof, or enter chimneys in unused rooms, where joints may become loosened, or the pipes covered with combustible material, without being noticed. If wood is used for fuel the pipes should be taken apart and cleaned once in three months.

SPONTANEOUS COMBUSTION.

It is well known that all finely divided substances, such as sawdust, wood lathe dust, cotton, wool, hemp, rags, rubbish, floor sweepings, etc., etc., when saturated with oil, and especially with the siccative or drying vegetable oils, such as linseed, olive, cotton-seed, rape-seed, etc., are liable to burn spontaneously. This combustion is accelerated by the application of heat, whether artificial or that of the sun, but takes place also when the substance becomes in any manner covered up, as in heaps, barrels or boxes, so as to confine the heat generated. The small scraps of oil-cloth, for instance, so harmless when scattered over the floors of a carpet store, become dangerous when collected in heaps or quantities.

A fire occurred January 14th, 1866, in the Wanskuck Woolen Mill of N. Providence, R. I., in an imperfectly scoured piece of heavy woolens placed, while still warm from the drying machine, *under several other pieces.* Loss on goods $1,000 before discovered and extinguished.

In the same year a fire occurred in the repair shop of the Everett Mills at Lawrence, Mass., from spontaneous combustion in a box containing some lathe dust from spindle bobbins (which had been made a little more dishing.) These bobbins when new had been soaked in *linseed oil.*

In June of the same year a fire occurred in the Pemberton Mill of Lawrence from spontaneous combustion in black and brown yarns lying in bins, probably from the small quantity of oils used in scouring these yarns. Loss, $17,000.

In May, 1869, a fire occurred in the Cordis Mill, Millbury, Mass., in an attic mule room, in a small quantity of carriage flyings which lay under a skylight where they were slightly wet by a shower and afterwards exposed to a bright sun shining through the glass.

It is well known that fires occur from the heating of webs fresh from the loom, if piled on top of each other, or covered up in any way before being scoured.

Too much care cannot be observed as to the oil used on stock; only a safe animal oil should be used, pure sperm, pressed or saponified lard oils, or a *pure* olive. Olive oil has of late been so adulterated with cotton seed oil (exported for the purpose) as to render its use on wool or cotton highly dangerous.

To avoid fires from spontaneous combustion, all dirty or greasy cotton or woolen waste should be removed to a building especially prepared for its reception, (and not exposing the mill) and never left in the mill over night. The cards should be cleaned in the forepart of the day, the waste passed through the duster and removed to the waste-house. It is moreover to the manufacturer's interest to clean the waste as soon as it comes from the card, since if left to accumulate, it becomes matted and will not clean well. The pickers should also be daily overhauled and all waste removed.*

Sweepings of floors nearly always contain more or less oil, and should not be allowed to accumulate in corners, but should be carefully removed each afternoon.

Too much pains cannot be taken, in case any painting is done on the premises, to see that no rags, waste, or cotton saturated with linseed oil (a most dangerous combination) is left in any part of the building. The examinations for such negligence should be the more thorough that the danger is greatest when such materials are covered up in any way; a condition in which, as before explained, they are most likely to ignite, *while, at the same time, most likely to elude a search for them.*

The increased use of hard woods as a finish for the interior of buildings, especially in offices, engine-rooms, stair-ways, etc., and the habit of *re-oiling them from time to time*, renders the observance of these precautions extremely necessary.

Many other substances are known to burn spontaneously, such as lampblack, oiled clothing, wet hemp ropes and mats, phosphorus, bituminous coal in large heaps, moist hay, etc., etc., but the most of them are not such as may be considered incidental to cotton and woolen mill risks.

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* Goods or yarns recently *dyed black* should be well aired and cooled before being packed.

"Both managers and workmen should know that spontaneous combustion is not an accidental, exceptional phenomenon, but that with the proper conditions, it is as certain as the firing of gunpowder"—with this difference, however, that the powder will not ignite until the spark is actually applied.

CONSTRUCTION.

Mills should be constructed especially with reference to their being easily kept clean. Hollow wooden cornices should be avoided, an ordinary bracket cornice being equally ornamental and *much safer*. Boxings of eaves in attics, etc., are objectionable, as is the ceiling of roofs, walls, or under surface of beams; in fact no concealed place should be left large enough for rats to secrete waste or oily cotton, or build nests in. The loose flyings of cotton or wool should be carefully swept from the *upper surfaces of stove-pipes* or steam-pipes, and from rafters and other wood-work, especially near belts, which, at a high rate of speed sometimes generate electricity and sparks sufficiently strong to ignite wood at a distance of eight inches from the pulley or belt. A fire occurred in this manner in the day time, in the Appleton Cotton Mills, of Lowell, Mass., March 21st, 1864. When first discovered a constant stream of sparks was passing between the belt and the corner of the timber which had been on fire.

We quôte from the Journal of the American Institute and the report of Mr. James B. Francis, C. E., of Lowell, Mass.:

> "It is not infrequent to find in the belt-boxes of a mill an accumulation of dust and flyings of cotton or wool, covering everything not in rapid motion to a sensible depth. In this case the belt box was very clean, to which fact, perhaps, may be attributed the slow progress of the fire and the detection of its cause.
>
> "Electrical excitement, manifested by sparks, shocks, and the symmetrical arrangement of the fibres of cotton and wool, is so common in our cotton and woolen mills as to excite no remark, it is, however, very different at different times. It is frequently used to light gas; a person standing on the wooden floor, and presenting one finger to a belt from which he can draw sparks, and another finger to the gas as it issues from a metal burner, the gas is instantly lighted. When the electrical excitement is strong, the same thing can be done at a considerable distance by several persons holding each others hands. It has never been observed here before, that any other substance than gas could be thus ignited. Since the fire, however, the Agent of the Appleton Company *has succeeded in igniting tinder by the sparks passing between the belt and the top of the bolt, and I have since done the same thing.*
>
> "Many fires have occurred in our cotton mills which could not be accounted for at the time; ample means are provided for extinguishing fire, if promptly applied, which they are likely to be when the machinery is in operation, when, of course, the work-people are at hand. So far as I have observed, electrical phenomena are exhibited in the mills only when the machinery or shafting is in motion. By the light of the late fire at the Appleton Mills, it appears probable that many other fires which were totally inexplicable at the time of their occurrence, may be attributed to this cause."

All **Wool Spouts** or chutes should be closed when not in use, that they may not conduct fire from story to story or increase the draft. BAND HOLES should be boxed and sills of doors laid high to admit of flooding, at least one inch deep, in case of fire. The FLOORS should be of heavy plank, with matched (tongued and grooved) flooring, above this, and may be rendered almost fire-proof, if laid in mortar three inches deep. A mortared floor of this kind saved the Pennacook Cotton Mill, at Fisherville, N. H., in Dec., 1866—a fire burning the entire roof off without extending below.

Unless mortar of a good quality is used and well laid, it is liable to disintegrate and afford burrowing places for rats and mice between the planking. An excellent and, on many accounts, preferable substitute has lately been discovered in the shape of a fire-proof material, formed into sections of different sizes and thicknesses, and an excellent non-conductor of heat, the sections of which being tongued and grooved, form close joints with each other, and effectually prevent the passage of rats or other vermin between or through them.

The STAIRWAYS should be outside, in a fire-proof porch or entrance tower of brick or stone, and *they should not be endangered or made impassable, by having the supply of oils kept under or near them.* ELEVATORS should also be in the porch, and have self-closing doors.

LIGHTING.

If by kerosene lamps, they should not be suspended by strings or cords; wires or chains alone being safe. They should not be nearer to the ceilings or wood-work above them than thirty-six (36) inches, and should be protected by *suspended* shades, and not by metal nailed against wood-work above, which may conceal charring without preventing it. An instance is mentioned by Mr. Braidwood, Superintendent of the London Fire Brigade, where a gas-light set fire to a ceiling twenty-eight and one-half inches from it.

If lights are protected by coverings, whether of wire or glass, care should be observed in keeping them clear of the dust, flyings of cotton, etc. *Unless this is seen to, shades are objectionable, as they serve only to collect inflammable material in dangerous proximity to the flame.*

Many fires are caused by swinging brackets, unprovided with stops to prevent their being *swung under or near wood-work.* If kerosene is used, only a safe article, *not less* than the United States standard of 110° should be permitted. If gas is manufactured from benzine, benzole, naphtha, gasoline, or any product of petroleum, the reservoir should be under ground, at least thirty (30) feet from the mill, and the air-pump or blower, if in the building, should be provided with an automatic valve to prevent *the passage of gas to the air-pump from the reservoir.* The air should be taken into the air-pump or blower through a pipe connecting with the outside of the building, *so that any back pressure will send the vapor into the open air instead of into the building.*

No fire-heat should be applied to the gasoline in order to make it vaporize, for the reason that gas-pipes are quite certain to be, at some point, so placed as to be subject to severe cold, and the result will almost inevitably be condensation, which is extremely dangerous.

No material for making gas must be stored where, in case of fire, it would endanger the building or insured property.

The gas-metre should not be exposed to fire in those parts of the mill most liable to it, such as the picker-room, dry-room, or in the boiler-room, where a leakage might ignite at the furnaces.

In 1874, the Social Mill, of Woonsocket, R. I., a mill of 50,000 spindles, was entirely destroyed by a fire which might have been easily extinguished but for the fact that at its very commencement, it attacked a large metre, melted a lead pipe and, filling every room with gas, defied all attempts to save the building.

WATCHMAN.

Only a reliable and sober man should be employed, *thoroughly conversant with all the fire appliances of the mill.* The keys or pulls of his watch or clock should be located at the extremity of each room farthest from the entrance, necessitating his traversing the entire length of the room to make his record. Only sperm or lard oil should be used in his lantern, *which should be a covered one.* A register should be kept of his performance of duty, and the superintendent or owner himself should take charge of his watch or clock.

DRYING.

This cannot be too carefully managed. Ventilation should be provided to prevent the accumulation of the highly inflammable gases generated in drying wool at high temperatures. *The watchman should not enter the room with a light, and should be instructed as to the danger of doing so.*

In December, 1866, a fire occurred at the Burlington Woolen Mills, by the ignition of gas in the drying-room from the watchman's lantern, and another at the Washington Mills, in Lawrence, Mass., Oct. 27th, 1868, from the same cause. In both cases the drying-rooms were "illuminated as by flashes of lightning," which would seem to indicate the presence of some highly inflammable gas.

Some idea may be formed of the quantity and combustible character of the gases generated in the different processes of woolen manufacture, from the fact that it is stated the gas contained in the suint or fatty materials of the soap-suds used in washing raw wool and spun yarns in a mill of 20,000 spindles will be more than sufficient to light the mill throughout the year, allowing five hundred (500) burners for daily use. (See Wagner's Chemical Technology, under head of "Artificial Light," page 675.)

Patent steam dryers are uninsurable, especially where the heat is applied by pipes *below the wool* and blown by fans. Cold air dryers are safest.

PICKERS AND PICKER-ROOMS.

Statistics show that no more fruitful sources of fires in cotton or woolen mills exist than the pickers. They should never be in the mill, or expose it, but in all cases in a separate building, to leeward of the main structure, (according to the prevailing wind) and built of brick or stone, and with a metal roof—which will confine a fire longer than any other. If the picker-building has openings—doors or windows on sides next the mill—they should be protected by iron (or metal covered wood) doors and shutters, and the windows, if any, of the mill building, on those sides exposed by the picker room, similarly protected—blank walls to both buildings are preferable. In this connection it may be well to state that it is now generally conceded that a wooden door or shutter, well lined with metal *on both sides*, or an iron door, *lined with wood on both sides*, is preferable to one entirely of iron—neither of the former will warp, and the wood, slowly reduced to charcoal, keeps the metal in shape, while the iron door or shutter, never having the heat applied uniformly over its surface, will be apt to twist or warp, and let the flame through.* A wooden door, lined with metal on both sides, at a fire which destroyed the Hartford Company's Works, at Tarriffville, Ct., in 1867, saved a building abutting against one destroyed, while all the iron doors and shutters to other buildings proved unreliable. Where the door protects a communication between two buildings, the *frame work and sill should also be of iron or covered with metal.* The iron door to a picker room *should not swing into the room*, necessitating entrance into the room to close it, and where it is more likely to be blocked open with stock, but should be so hung as to be pushed against a fire, and protect the person closing it. It would be advisable to have some simple, mechanical contrivance of a chain and pulleys, by means of which the door could be closed and secured from a distance, in case the suddenness or severity of a fire should prevent a near approach. Lights (if used at all) should be covered, and so arranged as to be lighted only from the outside. Boys and other low-priced hands should not be employed at the pickers, but only the most experienced and careful men; and strict rules should be enforced as to the carrying of matches in pockets—some of the most careful manufacturers making it a practice to periodically search the employees of the picker room, without previous notice, in order to secure a compliance with this necessary regulation.

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* A sliding door, so arranged that it will *roll up an incline* when opened, closing itself by the force of gravity, is better than all others.

Those picker-rooms, where the stock is wound up in a lap at each process, avoiding the accumulation of large quantities of loose cotton, as in gauze-rooms or bins, are safest. Pickers should not be allowed to run on loose pulleys, which are liable to cause fires by friction ; and should be daily overhauled to see that all wool or cotton is taken off the arms and shaft of the picker, where it comes in contact with the sides or any stationary part of the frame. The room should have no wood work exposed, and if plastered over furring (a very objectionable finish) care should be taken that the plastering is unbroken, so that a sudden fire cannot escape into the ceiling and beyond control. Steam jets are very efficient for extinguishing fires in picker and gauze rooms, and a small jet connected with the dust boxes of pickers is a judicious precaution. Few more effective fire appliances exist, however, than Sprinklers with a sufficient supply and head of water. They should be wrapped with a thin paper to prevent the orifices from being clogged with dust, &c.—a very simple but important precaution. *Only a thin, unsized paper should be used, that it may yield readily and instantly to the pressure of the water*, a poor quality of newspaper will suffice.

CASKS OF WATER AND PAILS should be liberally provided—they require little presence of mind or skill, and can be instantly applied at the commencement of a fire, and while it is still within control. They cost little, and their cheapness should insure a plentiful supply. STEAM-PIPES or jets, to be effective, should have valves outside the building, and there should be no intermediate valve in the boiler-room (as is too often the case to save loss of steam by condensation), especially if the boiler-room is locked at night. Oil should never be applied to wool at the pickers as it increases the danger of fire.

That we are not unnecessarily strict in our requirements and recommendations as to the pickers, the statistics of fires in mills will show.

The figures are startling when compared with the statistics of fires in other classes of risks, in view of the large number originating in the picker-rooms out of the whole number from all causes. It must be remembered, too, that many small fires in picker-rooms are never reported to the Companies by mill-owners, through a fear of causing apprehensions in the minds of underwriters, which might lead to an increase in the rate of premium—a very small advance in which, where a large line of insurance is carried, would amount to a sum possibly greater than any small loss. We know of one fire occurring in a picker-room resulting in a loss of over one thousand dollars, which was never reported for this reason, the owner not wishing to draw attention to any want of safety in his large mills, of which he owned several.

In view of the large number of fires originating in picker-rooms during the past ten years, we feel justified in pronouncing any mill with the picker in the main structure—and not in a fire-proof room—as *uninsurable*, and those mills where the pickers are in separate buildings, not endangering the mill, as the most desirable risks.

FIRE APPLIANCES AND APPARATUS.

We have already mentioned steam jets, sprinklers, casks of water and pails, in connection with picker-room fires. This water should be salted to prevent it from freezing, and pails full of water should be plentifully distributed throughout the card, drying and spinning rooms.

Too much cannot be said in favor of these simple provisions. What threatened to be a dangerous fire, in a New England mill lately, was extinguished by the use of pails of water and *wet brooms.* SPRINKLER PIPES should be of *wrought* iron, gradually decreasing in size as they extend from the rising main which, to supply them fully, should be at least double the area of the total areas of orifices of distribution, even when supplied by a reservoir 100 feet higher than the mill. With a less head of water as, for instance, where the reservoir is not higher than the mill itself, the proportion should be greater, say four or six to one. VERTICAL STAND PIPES from basement to attic, connected with a tank of water in the attic and with the force pump should be provided. *They should be located near the stairways to enable their being used for a longer time, and the hose should always be attached to hydrants at each floor.* It is needless to suggest the difficulty and delay of adjusting the threads of couplings in the excitement attending a fire.

The FORCE-PUMP should not be located where it is liable to have its belt cut by a fire, and if run by gears, *should* *be thrown into gear at night.* It should be tried at least once a week, to see that it is in order, and especially in winter, to empty the cocks and see that pipes are free. If run by belts (an objectionable feature) the belt should not be left off the pulleys or hung up near by, as is sometimes the case, rendering it liable to shrink beyond the possibility of springing it on in case of fire.

Force pumps, no matter how large or powerful, are effective only in proportion as they are supplied with power. If by steam, the steam areas should be to the water areas as four to one*; a less proportion is not sufficient. It need not be suggested that sufficient steam should be kept up during the night and on holidays to operate the pump in case of fire.

If OUTSIDE HYDRANTS are provided, connected with a reservoir, they should be protected from the frost, and have not less than 100 feet of good hose attached, and be protected from the weather by suitable housings. The couplings of all hose of the mill should fit that of the nearest city or village fire department, or reducing couplings be provided to remedy the fault.

FIRE EXTINGUISHERS, especially those whose mechanism requires merely that they should be reversed to be ready for use, are very efficient, and if kept in every room will materially increase the chances of extinguishing a fire.

ORGANIZATION. Each man should have his appointed task in case of a fire, and understand it beforehand. The greatest safety lies in a just apprehension of danger, and the extinction of a fire depends largely, if not entirely, upon the intelligence and concert of its management. In the best managed mills the male employees are regularly drilled to prepare them for any fire that may occur, that there may be no confusion or panic, and the proper action taken at the very beginning of a fire, when alone it can be got under control if at all.

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* With steam at high pressure.

For the information of any manufacturers who may contemplate building a mill, it may be well to briefly recapitulate the requirements of a first-class or standard risk—one that may be taken at the minimum rate. For each deficiency a charge is made according to the importance of it.

BUILDING, of heavy and substantial, brick or stone, walls, not furred off, plastered on masonry.

ROOF, of matched or grooved planking, covered with slate, metal or composition, or shingles laid in mortar. The last would be preferable if it did not necessitate a pitch roof and an attic or unused room, which, for reasons already stated, is objectionable—a flat metal roof is preferable to all others.

HEIGHT, not over four stories—less would be better.

LENGTH, not over 200 feet, unless divided by substantial fire-walls.

GUTTERS AND CORNICES, of stone or metal—*not wood, boxed.* There should be no CEILING, either to roof or under side of floor timbers or walls—on the latter, the plaster should be laid solid without furring or wall strips.

FLOORS—these should be of heavy plank and matched planking laid in mortar—or a better substitute as before described—all band holes to be boxed and door-sills laid high for flooding.

STAIRWAYS AND ELEVATORS should be in porch—latter with self-closing doors.

LADDERS, movable and permanent, latter of iron, and with platforms at each story. There should be one or more scuttles in roof, with ladder or stairs leading to them.

HEATING, by steam pipes not in contact with wood, and not carried out of sight between floors or plastered partitions, to be protected with iron thimbles where they pass through floors.

LIGHTING, by gas manufactured outside, as before described. Lights in picker-room to be covered and lighted from outside. No lights to be permitted in the dry room.

PICKER, in a brick or stone metal roof, to the leeward of main structure (according to prevailing winds), and not exposing the mill. Lighted from outside, and provided with sprinkler and steam jets.

FIRE APPLIANCES, as already specified.

POWER, by water, or steam generated outside the mill, in a boiler house prepared for the purpose.

DRYING—ought to be outside—must not be by patent hot air dryers.

LIGHTNING RODS—These are useless and worse than useless—dangerous—if not properly put up and kept securely fastened. They should have numerous points above the roof. A rod protects no larger surface of a roof than is measured in each direction by four times the height of that portion which extends above the roof.

Locust posts as supports for floors are much better than iron columns.

N. B.—The reason for marking so many of the foregoing hazards as to be declined for this Company is, that, *at current rates*, they are unprofitable.

When, if ever, circumstances are so modified as to make them paying risks, we are entirely willing to write them. In the mean time, where a number of special hazards, including those marked to be declined, are located at an agency, the agent should report the fact to the Company, in order that an inspection of them may be made by a competent special agent, and a specific understanding arrived at as to the insurance of them; for while, *as a class*, many of them may be bad, others may be fit to be insured.

FORMS FOR
POLICIES, ENDORSEMENTS, TRANSFERS,
ASSIGNMENTS, ETC., ETC.

NOTE.—For full instructions as to the writing of policies, see pages 108 to 136.

Forms of Policies for Special Hazards. As policies on this class of risks, are written at the main office of the Company, it is not necessary to give copies of specific forms here. The general rule may be stated that in insuring these hazards, a separate and specific amount should be insured on building, on machinery, on boilers and engine, and on stock. (See page 193.)

Where a concurrent form of policy has been prepared and agreed upon, especially if printed, *two copies* should be forwarded to the Company with the survey and application.

Form for Stock of Merchandise.

ROBERT ALLEN.

No. 301. Five Thousand Dollars. $5,000.

$4,500 on his stock of dry goods, and other merchandise (*do not use the term "goods," "effects," "articles," or "property,"*) not more hazardous.
300 on his office furniture, and
200 on his safe; all contained in the three story, brick, metal roof building, with coped walls, and situate No. 10 Adams street, in the city of Hartford, Ct.

$5000 other insurance, concurrent herewith, permitted.

$5,000. One year. 1.50. $75.00.

Merchandise Form, with Commission Clause (see page 123.)

WILLIAM ALLEN & CO.

No. 501. Five Thousand Dollars. $5,000.

On merchandise not hazardous, hazardous, and extra hazardous, their own, or held by them in trust, or on commission, or sold, but not delivered (*do not use the word "removed,"* see page 127), contained in the brick building privileged for extra hazardous occupation, situate No. 423 Lincoln street, in the city of Troy, N. Y.

$20,000 other insurance, concurrent herewith, permitted.

$5,000. One year. 1½ per cent. $75.00.

NOTE.—In all cases, classify stock and occupation according to hazard, and specify *amount* of other insurance, if any. See page 110.

Merchandise Form for a Country Store Stock in a Building occupied, in part, by Insured as a Dwelling.

ROBERTS, HALSEY & CO.

No. 231. Three Thousand Dollars. $3,000.

On their stock of dry goods, groceries, hardware, boots and shoes, and such other merchandise, hazardous and extra hazardous, as is usually kept for sale in country stores, contained in the three story, frame building, with metal roof, privileged to be occupied for an extra hazardous store and private dwelling, and situate on the easterly side of the main street, between Adams and Jefferson streets, in the village of Halseytown, Oneida, Co., N. Y.

$4,000 other insurance, concurrent herewith, permitted.

$3,000. One year. 2.00. $60.00.

Form for a Building Occupied solely for Mercantile purposes.

JAMES BROWN.

No. 2422. Five Thousand Dollars. $5,000.

On his two story, brick building, with metal roof and coped walls, privileged for hazardous (*or extra hazardous, as case may be*) occupation, situate No. 21 Powers street, Brooklyn, L. I.

$15,000 other insurance, concurrent herewith, permitted.

$5,000. One year. 1½ per cent. $75.00.

Form for Retail Drug Store, with Dwelling.

THOMAS JONES.

No. 2,064. Two Thousand Dollars. $2,000.

$1,000 on his retail stock of drugs and medicines.
250 on his wines, liquors and segars (*if these are kept.*)
250 on his cutlery and fancy goods.
250 on his store furniture and fixtures.
250 on his soda fount, bottles and glassware.

All contained in the three story, metal roof, brick building, occupied in part by the assured, as a dwelling for himself and family, situate on the north-westerly corner of Main and Park streets, in the city of Poughkeepsie, N. Y.

$2,000. One year. 2 per cent. $40.00.

Never insure bottles, fount or soda water apparatus, or fixtures, furniture, etc., under same amount with stock. See page 131.

Wholesale Drugs. Decline. See page 204.

Policies on Bridges. Refer to Company. Where draw-bridges are insured, a specific amount should be written on the draw and, also, on each of the two sections separated by the draw, as, in case of fire, they may be made three distinct risks by opening the draw. If watchmen and casks of water are provided, they should be made the subjects of warranties in the policy.

Form for Farm Property.

No. 625. CHARLES M. STARK. $4,250.

Four Thousand, Two Hundred and Fifty Dollars.

$2,000 on his frame building, with tin roof, privileged to be occupied as a dwelling, situate, detached, on the easterly side of the road leading from Newtown to Riverhead, in the township of Brookhaven, Suffolk County, N. Y., as per diagram filed No. 625 in the office of the Company.

500 on his household furniture, beds, bedding, linen, and wearing apparel, contained therein.

700 on his frame barn, situate on above-named premises, and standing 100 feet easterly from said dwelling, and marked No. 2 on said diagram.

300 on his two horses, being $150 on each, (*see pages* 129 *and* 92) contained therein.

300 on his hay, grain and feed contained therein.

100 on his buggy, and

100 on his farm-wagon contained therein.

50 on his corn-crib, situate 20 feet easterly from said barn, and marked No. 3 on said diagram.

100 on his corn contained in said corn-crib.

100 on his wood-shed and pig-pen, situate about 30 feet north from said corn-crib, and marked Nos. 4 and 5 on said diagram.

$4,250. Three years. 1.50. $63.75.

Specific Form for Farm Property, including Hay and Grain in Stacks.

No. 370. JAMES CORWIN. $5,900.

Five Thousand, Nine Hundred Dollars, as follows:

$2,500 on his brick dwelling-house, with tile roof, No. 1 on diagram.

750 " household furniture.
250 " wearing apparel.
50 " printed books.
100 " plate and plated ware.
125 " five paintings, being $25 on each.
120 " provisions.

All contained in above described dwelling.

250	on his	barn, No. 2 on diagram.
60	"	grain.
100	"	hay and other feed for stock.
300	"	three horses, being $100 on each.
100	"	two oxen and three cows, being $20 on each.
100	"	farming implements.
		All contained in said barn No. 2.
250	"	carriage-house, No. 3 on diagram.
75	"	two carriages and one wagon, being $25 on each.
50	"	two sets single harness, being $25 on each set.
250	"	two horses, being $125 on each.
35	"	hay and feed.
		All contained in said barn No. 3.
100	"	hay in four stacks, Nos. 4, 5, 6 and 7 on diagram, being $25 on each.
100	"	grain in four stacks, Nos. 8, 9, 10 and 11 on diagram, being $25 on each.
15	"	granary, No. 12 on diagram.
35	"	grain therein.
25	"	grain in granary, No. 13 on diagram.
160	"	four oxen and four cows, being $20 on each, in stables, Nos. 14 and 15 on diagram, adjoining and communicating.

All on his farm, situate on the east side of the turnpike, near the village of Middletown, town of Walkill, County of Orange, State of New York. Reference being had to survey of said premises, No. 5,069, on file in the office of the Company, which forms a part of this policy, and is a warranty on the part of the assured.

$5,900. One year. 50 cents. $29.50.

Form for Dwelling.

HENRY H. BROWN.

No. 724. Three Thousand Dollars. $3,000.

On his three story, frame building, with composition roof, privileged to be occupied as a dwelling, situate No. 13 Ocean avenue, Newport, R. I. $7,000 other insurance, concurrent herewith, permitted.

$3,000. One year. 75. $22.50.

Form for Detached Dwelling.

JAMES CLARK.

No. 220. Five Thousand Dollars. $5,000.

On his frame building, filled in with brick, and with Mansard roof of slate and tin, privileged to be occupied as a dwelling, situate, standing detached over 100 feet, on the westerly side of the Hunters Point Road, about 75 feet south from the Newtown Turnpike, in Woodside, New York. $10,000 other insurance, concurrent herewith, permitted.

$5,000. One year. 60. $30.00.

NOTE.—Frescoing or gilding on walls and ceilings, plate glass of dimensions above three feet square (or nine square feet), cloth window awnings, outhouses, and fences are not covered unless specified in the policy. A higher rate should also be charged (see page 131).

Full Specific Form for Household Furniture.

JAMES LANCASTER.

No. 432. Five Thousand Dollars. $5,000.

$2,000 on his household furniture, beds, bedding, linen and wearing apparel.
200 on plate and plated ware.
100 on printed books.
500 on his oil painting by Hart, entitled "Sunset," and its frame.
500 on other paintings and engravings and their frames, it being understood that not over $50 (*or* $100, *or otherwise, as case may be*) is to be claimed, on any one, in case of loss.
200 on family stores and fuel.
50 on his cabinet of curiosities and birds, not over $10 to be claimed on any one specimen, in case of loss.
350 on jewelry and watches *in use*.
150 on mantel ornaments.
800 on statuary, not over $200 on any one piece.
100 on large pier mirror and frame.
50 on one melodeon.

All contained in his four story, brick, metal roof dwelling house, situate No. 20 Adams street, Boston.

$5,000. One year. 50 cents. $25.00.

NOTE.—Jewelry and watches in use, and the amount thereon, must be specified in all cases.

Avoid the term "useful and ornamental," (see page 135). As to insurance of paintings, see page 129. A specific amount should also be named on *large pier glass mirrors.*

Wearing apparel should be insured for a specific amount, if possible. If the insurance is in the *wife's name* it does not cover *wearing apparel of the husband.* (See page 120.)

Musical Instruments (pianos excepted, which are insured under a policy of this Company on household furniture) must be specifically insured. They are not, otherwise, covered.

Form for Lumber Yard Policy.

JAMES BROWN.

No. 305.	Twenty-five Hundred Dollars.		$2,500.

On his stock of lumber, timber, laths, shingles and posts, all located on the block bounded by Adams, Jefferson, First and Second streets, in the city of Chicago, Ills.

$2,500.	One year.	2 per cent.	$50.00.

NOTE.—Dressed lumber in Warehouse, should be specifically insured.

Form for Livery Stable Policy.

EDWARD D. HOLMAN.

No. 502.	Twenty-five Hundred Dollars.	$2,500.

NOTE.—A larger sum must not be insured without the consent of the Company. (See page 225).

$1,400 on his fourteen (14) horses (*always insert the number*), being $100 on each horse.

500 on two (2) phætons, being $250 on each.

300 on three (3) buggies, being $100 on each.

200 on harness, and

100 on hay, grain and feed.

All contained in the one story, frame, shingle roof building occupied as a livery stable and situated No. 24 Adams street, in the city of Boston.

Warranted by the assured that smoking and the use of open lights shall not be permitted on the premises.

Separate amounts should be insured on carriages, buggies, sleighs and horses, and, under no circumstances, should all be insured under one amount. Horses more valuable than usual, should be insured *specifically*, and by description. (See page 92.)

Livery stables should not be insured unless for small amounts and at full rates. They burn frequently from the carelessness of sleepy or intoxicated hostlers with lights or pipes at night, and seem to be the class of risks most frequently fired by incendiaries.

The rolling stock on first floor is a better risk than either the building or horses, or sleighs on upper floors.

Form for Church Edifice.

THE TRUSTEES OF THE ROCKVILLE BAPTIST CHURCH.

No. 323.	Five Thousand Dollars.	$5,000.

On the brick building, with metal roof, and spire, privileged to be occupied as a place of public worship, situate fronting the Public Square in Rockville, Cayuga Co., N. Y. $10,000 other insurance, concurrent herewith, permitted.

$5,000.	One year.	1 per cent.	$50.00.

NOTE.—Where insurance is desired on the bell, organ, fresco work, movable furniture, sunday school library, etc., specific amounts must be named on each class of property.

Specific Form for Church Property.

RECTOR, WARDENS AND VESTRY OF THE CHURCH OF THE MESSIAH OF THE CITY OF BROOKLYN.

No. 450.	Five Thousand Dollars.	$5,000.

$3,000	on the brick, tin roof Church edifice, situate corner Greene and Clermont avenues, Brooklyn, N. Y.
250	on fresco work on walls and ceilings.
500	on the organ therein.
500	on the pews, pulpit and other church furniture therein.
250	on their vestments, chancel statuary, marble font, and plate therein.
250	on library of printed books, in the Sunday School room of said church.

50 on melodeon therein.
100 on benches, stools, chairs and furniture therein.
100 on the bell in tower.
$5,000 other insurance, concurrent herewith, permitted.

Form for Printing Office.

NOTE.—We do not favor these risks at current and obtainable rates. See page 238.

No. 106. Twenty-five Hundred Dollars. $2,500.

$900 on one large drum-cylinder press.
400 on five other printing presses, being $80 on each.
500 on fixed and movable machinery (other than presses), cutting machines, shafting, belting, pulleys and hangers.
200 on stands, cases, tables, chases, rules, rollers, and such tools and implements as are incidental to printing offices, and not specifically mentioned in this policy.
300 on stock of paper, ink and printing material.
200 on type.
All contained, etc.

Type must, always, be specifically insured, and for a small amount. When "pied" it is claimed to be worthless.

Never write a blanket policy on presses, type and other property, under one amount. If the insurance cannot be made specific and concurrent, *decline.*

Form for Rent Policy (see page 120.)

ALFRED HARDY.

No. 1924. Five Thousand Dollars. $5,000.

On the Rents of his brick, metal roof, coped building, privileged to be occupied as a dwelling and hazardous store, situate No. 483 Broom street, in the city of Boston, Mass. Loss, if any, subject to the following conditions:

It is understood and agreed that, in case the above building shall be rendered untenantable by fire, the Company shall pay at the rate of Four Hundred and Sixteen $\frac{66}{100}$ Dollars per month, for whatever time the same shall continue *untenantable* (*not untenanted*), and a fair proportion of that amount for any part of said building that may be so made and continue untenantable, and until the same shall be put in the like good order, as at the time next preceding the fire. It is also understood and agreed, that all reasonable diligence shall be used in repairing any damage that may occur, and that, under no circumstances, shall the Company be liable to pay more than the sum hereby insured.

$5,000.	One year.	1½.	$75.00.

Form for Re-Insurance (see page 127.)

No. 623.	Three Thousand Dollars.	$3,000.

The Continental Insurance Company, of New York, in consideration, etc.. do re-insure the.........Insurance Company against loss or damage by fire to the amount of Three Thousand Dollars on merchandise, hazardous, the property of Harmer, Hardy & Co., contained in the brick building, privileged for hazardous occupation, situate No. 23 Pavonia avenue, Jersey City, N. J. $....... other re-insurance, concurrent herewith, permitted. Loss, if any, payable pro rata, with the re-insured.

$3,000.	One year.	1 per cent.	$30.00.

Be sure that the re-insured company retains a proper line, and that it is not re-insuring the whole of its policy. *In reporting to the Company, state the amount retained by the re-insured company.*

Average Clause—Distribution Form.

"It is understood and agreed, that the amount insured by this policy shall attach, in each of the above-named premises, in that proportion of the amount hereby insured, that the value of property covered by this policy, contained in each of said places, shall bear to the value of such property contained in all of above-named premises."

This clause is intended to remedy the disadvantages of a blanket form of policy covering, under one amount, property in two or more buildings or localities. It should never be omitted in such policies. Its operation is to make a specific policy, and its application is as follows:

If a policy for $5,000, for example, covers merchandise in two different buildings, each containing property to the value of $5,000, the policy would pay, in case of a total loss in one of the buildings, $2,500—that amount being in the proportion which the value of property in the building burned bears to the value of property in both. Without such a clause, the policy would be liable for $5,000, its full amount, and the Company would, clearly, be carrying *two risks for one premium.*

Average Clause—Co-Insurance Form.

"It is understood and agreed, that, in case of loss under this policy, this Company shall be liable only for such proportion of the whole loss as the amount of this insurance bears to the cash value of the whole property herein described, at the time of the fire."

The owners of certain classes of property, such as stocks of bar or rod iron, heavy hardware, etc., which are not liable to damage for their full value, generally plead this fact as an argument for low rates, and then *carry only an amount of insurance sufficient to cover a small partial damage.* A stock of heavy bar iron, for instance, worth $100,000, but insured for only $10,000, would exhaust the insurance, in case of a partial damage of *only ten per cent. of its value*, and prove a less profitable risk to an insurance company than a stock of millinery paying double or treble the rate, and insured for 75 per cent. of its value.

In case of a *partial damage* to property it makes a difference whether there is other contributing insurance or not; and while over-insurance is to be guarded against as productive of moral hazard, the underwriter will find it to his interest to avoid the other extreme of too small an amount of insurance as compared with the value of property at risk, especially at the inadequate rates current upon most risks.

The co-insurance clause is intended to remedy this. Its effect is to prevent a total loss to the Company *where less than a total destruction of the property occurs.*

Take the following example. If property worth $10,000, located in two buildings—say $5,000 in each—be insured for $5,000, without the co-insurance clause in the policy, the burning of one of them would cause a loss of $5,000—the whole sum insured. Under the co-insurance clause, the loss would be only one-half so great.

It is evident that, in such a case, a rate twice as large should be obtained, or the co-insurance clause inserted, making the assured a co-insurer for any excess of value above the amount insured. He then stands in the same relation to the Company as that of another insurance company having a policy for such amount, and, in that capacity, bears his proportion of the loss.

The application of the co-insurance clause is, sometimes, misunderstood. In cases of *total* destruction of all the property insured, its insertion does not lessen the amount the assured receives. It operates only in cases of *partial loss*, to prevent a total loss under the policy when the property is only partially damaged. The assured receives the same proportion of his insurance that his loss bears to the value of his property. If he loses all of his property, *he receives all of his insurance;* if he loses one-half of the property, *he receives one-half of the insurance*, being himself a co-insurer for the other half.

The construction of the clause may be briefly stated to be that *whatever fraction of the property is destroyed*—one-fourth, one-half or three-fourths, as the case may be—*that fraction of the insurance is payable.* If all is destroyed the whole insurance is payable.

The *co-insurance* form of the average clause must not be confounded with the *distribution* form. The former is intended to make the owner a co-insurer and to prevent too small an amount of insurance, while the latter is intended to make a blanket policy, covering in two or more localities, specific, and prevent the insurance of two or more risks for one premium, and the loss of the whole amount of the policy by a fire in any one of the localities mentioned in it.

Form for Lease Policy (see page 119.)

JAMES BROWN.

No. 542. Three Thousand Dollars. $3,000.

On his lease of the three story, brick, metal roof building, privileged for hazardous occupation, situate No. 42 Pine street, St. Louis, Mo. Loss, if any, payable as per lease clause attached.

It is a condition of this insurance that, in case of such destruction by fire of the above-named premises, that the lease held by the assured shall be, by its terms and in fact, canceled, then this Company shall be liable to pay the whole amount hereby insured, less a deduction at the rate of..............(*here insert one-twelfth* ($\frac{1}{12}$), *or other proper proportion of the policy, according to its term and the value of the lease*) dollars per month, for such time as shall have elapsed between the date of this insurance and the happening of such fire.

Form of Endorsement on Policy for Benefit of Mortgagee.

At the request of the assured, this Company hereby consent that loss, if any, under this policy, shall be payable to "The Mutual Life Insurance Company of the City of New York."

...........................Agent.

Satisfaction of Mortgage.

The interest of Richard Roe, as mortgagee in this policy, having ceased. Loss, if any, is payable to the insured, John Doe, as sole owner.

Transfer of Risk.

"This insurance is, hereby, transferred to cover on same property now contained in the............"

See, also, Removal Clause, page 287.

If the rate is higher in the new location, collect and report; if lower, extend the term of the policy in preference to returning a portion of the premium. In all cases, survey as carefully for a transfer as for a new risk.

Other Insurance.

$........other insurance, concurrent herewith, permitted.

Note.—Limit the amount of additional insurance, in every case—and all policies should be concurrent with the policy of this Company. (See page 109.)

Builder's Risk.

"Builder's Risk granted for 90 days from date, charge therefor $6.75."

Note.—Fifteen days' builder's risk may be allowed in any one year during the life of a policy without charge; when the risk exceeds 15 days, charge, in addition to the regular rate, according to instructions, page 48, always stipulating in the policy the time for which the privilege is granted.

Kerosene Oil for Sale.

"Permission granted to keep for sale not to exceed five (5) barrels of kerosene or illuminating oil, which shall be of not less than the United States standard of 110°. Not to be handled or sold by artificial light within the distance of fifteen (15) feet."

If more than five (5) and not to exceed ten (10) barrels are kept, it subjects both building and stock to an additional charge. (See page 82.) The limitation, in all cases, to appear in the policy.

Gunpowder on Sale.

"Privileged to keep on hand for sale in said building, not to exceed twenty-five pounds of gunpowder, the same to be kept in closed tin or earthen canisters, neither artificial light nor heat to be taken within ten feet of same."

Note.—The amount of gunpowder prescribed by law should never be exceeded.

Lightning Clause.

"It is hereby specially agreed, that this contract insures against any loss or damage caused by lightning to the property insured by

Policy No........, Renewal No........, not exceeding the sum insured thereby nor the interest of the assured in said property, and subject in all other respects to the terms and conditions of the policy hereby referred to. Provided, however, that if there shall be any other insurance on said property, this Company shall be liable only for such proportion of the loss caused by lightning as the amount insured hereby shall bear to the whole insurance on the property hereby insured, whether such other insurance is against loss by lightning or not.

Change of Ownership.

This Company hereby agrees to recognize Henry Wittington as sole owner of the above-named property. Loss, if any, payable to him.

NOTE.—This may, also, be done by assignment on back of policy. See printed form.

Assignment of Policy.

(See the printed form on the back of the policy itself.)

In reporting an assignment to the Company, on the small blank provided for that purpose, it is not necessary to copy the whole printed form, but merely to state that policy has been assigned to the assignee, giving the name and interest of the latter. In all cases, *the interest of the assignee* should be stated in the report.

Assignment after a Loss.

Do not consent to any assignment, or other change in a policy, *after a loss.* When a fire occurs, the policy should be permitted to remain exactly as it was before the loss.

Change of Occupancy.

"Notice received of the removal of the stock of dry goods from the building, and permission granted to occupy the first floor for a wholesale grocery store."

Or, where hazard is increased :

"In consideration of the receipt of $10.50 additional premium, permission is granted to occupy the building for the sale of wholesale liquors and rectifying by cold process."

Buildings on Leased Ground (see page 118.)

It is understood that the above-named building stands on leased ground, the lease having............years to run, (*always insert the number of years*), from.............187..., (*insert date of commencement.*)

To Cover Mortgage Interest.

This Company hereby agrees to recognize John Doe as mortgagee under this policy. Loss, if any, first payable to him to the extent of his mortgage interest.

Assignment of Mortgage Interest.

The interest of John Doe, as mortgagee in this policy, having been assigned to Richard Roe, consent thereto is hereby given, and loss, if any, payable to him as such assignee mortgagee.

Form of Permit to Keep Fireworks.

In consideration of $........additional premium (*charge* 50 *cents per* $100 *of insurance for every month, or fraction of a month*) permission is granted to keep fireworks for one month ending August 4th, 1876.

Permit to Run Machinery Extra Hours.

In consideration of $.........additional premium, permission is granted to run the machinery extra hours, not later than nine o'clock, P. M., to even up work.

Where the permit is granted in a cotton mill policy, the words "*pickers excepted*" should be inserted after the word "*machinery*" in above clause. In cases of night work in cotton mills, the pickers should not be run after dark.

Where the machinery is run later than nine o'clock the time must be charged for, at the same rate as day work, although worth more on account of the danger from the carelessness of tired and sleepy employees.

Where manufactories (other than those in which night work is an incident of the process, such, for example, as rolling mills, blast furnaces, etc.) are run all night, double rates should be charged.

Removal Clause.

"Whereas, the above property is being removed from the premises described to the four story, brick, metal roof building privileged to be occupied as a non-hazardous store and dwelling, situate No. 52 Jefferson street, this policy will cover in each place in the proportion thereof that the value of merchandise in each bears to the value of merchandise in both, the removal to be completed within twenty (20) days from date." (See "Transfer," page 284.)

Three Fourths Clause.

"It is understood that in event of loss or damage under this policy, this Company shall not be liable for more than three-fourths the actual cash market value of the property hereby insured, as of the time immediately preceding such loss, and in event of other insurance permitted thereon, then liable for its proportion only of three-fourths such loss."

Certificate to be taken for a policy lost or destroyed *where no premium has been paid.*

ALBANY, N. Y., January 10th, 1877.

"This is to certify that policy No. 27, renewal No. 138, of the Continental Insurance Company of the City of New York issued to me at its agency at Albany, N. Y., on the stock of merchandise contained in the brick, metal roof building situate No. 10 Pine street, cannot be found, and said policy and renewal are hereby declared to be null and void, the said Company being hereby released from all liability thereunder; and I further agree that, in case said policy and renewal should, at any time, be found they shall be forwarded to said Insurance Company, at its office in the city of New York, without any delay." RICHARD ROE.

Certificate of Discharge for a Policy lost or destroyed, to be taken, in all cases, where it is necessary to cancel such a policy *and to pay any return premium.*

ALBANY, N. Y., January 10, 1877.

This is to certify that policy No. 27, renewal No. 138, of the Continental Insurance Company of New York, issued to me at its agency at Albany, New York, on the brick, metal roof building situate No. 10 State street, cannot be found, and, in consideration of the sum of Ten and $\frac{50}{100}$ dollars ($10.50) return premium to me paid, the receipt of which is hereby acknowledged, the said policy and renewal are hereby canceled in full, the said Company being released from all liability thereunder; and it is further agreed, that, in case said policy and renewal should be, at any time, found, they shall be, at once, forwarded to the office of the Company in New York.

James Brown,
Assured.

Form of Contract with Builder to Repair Damaged Premises.

In consideration of one dollar to....paid by the Continental Insurance Company, of the City of New York, the receipt whereof is hereby acknowledged, and of further payments to be made, as hereinafter set forth;....hereby agree, to and with the Continental Insurance Company aforesaid, to forthwith repair in a good, substantial and workman-like manner, the............ ....Building................owned by.............. and insured by said Company, by their policy No............and which was damaged by fire on the.........day of.........187..; and fully to restore and to put said building in as good condition, in all respects, as it was before the said fire, and to the entire satisfaction of the owner thereof, for the sum of...........Dollars, payable when the repairs are made and the work fully performed and finished, provided I shall then produce and deposit with said Company, at their office in the City of New York, a certificate from the owner of said building, stating that said repairs and work have been done to his entire satisfaction, and that he consents to the payment of the sum above-mentioned, by said Company, for the performance of this contract.

In witness whereof......have hereunto set......hand and seal this................day of................187....

In the presence of

..............................[L. S.]

Agreement to Appraise Damaged Property.

Whereas, a difference of opinion exists between..........of the first part, and the Continental Insurance Company, of the City of

New York, of the second part, as to the sound cash value on the............day of............187..., of property belonging to said party of the first part, and which property is more particularly described in the schedule hereto annexed, marked *A*, and also as to the amount of the loss or damage to said property by a fire which occurred on the............day of............187...

Now, it is hereby agreed by the said party of the first part and the said Insurance Company, party of the second part, that *John Doe* and *Richard Roe* shall estimate and appraise the true, sound, cash value of each article of said property on the day first above mentioned, as well as the actual damage thereto, by the fire above referred to; which appraisement of sound value and of loss and damage as aforesaid, made in writing and signed by them, shall be binding upon both parties hereto, it being understood that by this submission it is only intended to ascertain and decide upon the AMOUNT of such sound value, and the AMOUNT of such loss and damage; and being also understood and agreed, that in case of the inability of the appraisers, above named, to agree upon the valuation and damage as aforesaid, said appraisers shall mutually select a third disinterested party to act with them, and the award of any two of such three parties, duly rendered in writing, shall be final and conclusive, as to such amount, the same as if rendered by the two appraisers first selected and herein named.

Said appraisement and award to be made under oath, and delivered, on or before the............day of............187...

Signed and sealed, this............day of............187...

In the presence of

..................................[L. S.]

Oath of Appraiser.

State of.................... } ss.
County of.................. }

We, the undersigned, having accepted the appointment mentioned in the foregoing agreement, do solemnly swear that we will, with strict impartiality and fairness, perform the duties assigned to us by said agreement, and that we will return to the parties thereto a just and faithful estimate and appraisement of the actual sound cash value, on the............day of..........

18..., of the property described in policy No..........issued by said Continental Insurance Company, and also of the actual loss and damage to each article of the said property by the fire referred to in said agreement, said property being more particularly set forth and described in the schedule hereunto annexed, marked *A*.

Witness our hands, the............day of............187....

Subscribed and sworn to before me this }
........day of............A. D. 187.... }

Award of Appraisers.

We, the undersigned, appointed to appraise and estimate the actual damage to each article named in the schedule hereunto annexed, marked *A*, which was damaged or destroyed by fire on the................day of..............187..., do hereby certify that we have truly and conscientiously performed the duty assigned us, and have awarded as the actual cash value of and damage to each article the amount as therein set forth.

Witness,

......................................[L. S.]

Printed Slips and Forms.

Where a printed form is furnished by the assured, it should be signed by the agent and numbered to correspond with the policy, as follows :

"*Slip No........attached to policy No.........of the Continental Insurance Company.*"

.....................*Agent.*

The following entry should, also, be made upon the policy :

"*As per printed slip No........attached hereto, signed by the agent of the Company, a duplicate of which is filed in this office.*"

As before stated, *two copies* of such slips should be forwarded to the Company, with the application or daily report.

THE SAFETY FUND LAW

OF THE

STATE OF NEW YORK;

Its Origin, Purpose and Advantages Explained.

THE idea of the Safety Fund Law of the State of New York originated at the close of the year 1872, when, in consequence of the fires of Chicago and Boston, one hundred insurance companies were in the hands of receivers in bankruptcy.

The delay in the adjustment of loss claims, representing, in some instances, the entire means of claimants who saw the assets of companies they had relied upon, gradually dwindling away in the hands of receivers, appointed as stewards of estates to which they were, often, entire strangers, was exceedingly distressing: On the other hand, the holders of policies on property *not burned* were seeking and paying for new and, often, doubtful insurance to take the place of the old, some of them meeting with losses before they could succeed in getting insurance elsewhere—while others *actually learned of the worthlessness of their subsisting insurance, for the first time, after the destruction of their property by fire.*

It needed no argument to convince intelligent business men, that a receivership was the worst possible fate which could befall a company. The receiver had no interest in maintaining, for the Company, whatever good name for honest dealing it may have previously succeeded in deserving. His only interests were promoted by delay. The *available* assets of the company, such as real estate, stocks and bonds, mortgages, etc., shrunk in value to a considerable degree, from the very fact that they were thrown upon the market at a time when prices were at panic figures ; while the *unavailable* assets, such as *balances in the hands of agents* and *unpaid premiums* (items which are always considerable in amount but never forwarded to a company, after the announcement of its failure), and the *printed material, policies, blank-books, etc.* (which are not worth the price of "old paper" if not available for the purposes of the company for which they have been prepared), became utterly worthless.

The question naturally arose, at such a time, whether there was not some way out of these difficulties. Clearly, the sudden winding up of a company's business was not the best thing for those having claims for losses by fire; indeed, in view of every consideration, it was the very worst—the bankrupt estate suffering in much the same way that the estate of an individual often suffers by his sudden death : on the other hand, it was, also, far from being a desirable thing for the *unburned* policy holders, claimants for unearned premiums, due to a great number of individuals and for small sums, but amounting, in the aggregate—especially in the case of large companies—to hundreds of thousands of dollars ; and forming assets which, if kept intact for their protection (instead of being returned to them in small installments, extending through years of delay), would be ample security during the term of their policy contracts, and render any search for other and new insurance, *at the higher rates which the stress of the occasion would induce companies to charge*, entirely unnecessary.

By other exisisting laws these return premiums were made *preferred claims*, to be paid before and irrespective of the loss claims, and if these small sums—amounting, in the aggregate, in the case of the Continental Insurance Company, at this time, for example, *to nearly one million of dollars*—could not be used, under any circumstances, for the loss claimants, the question very naturally arose, *why could they not be invested and held for the security of those to whom alone they belonged?* Such a sum would actually be much larger, for purposes of security, than the entire assets of many solvent companies and, therefore, as good, if not better, insurance for such policy holders than they could find elsewhere, especially at a time when the standing of companies cannot be ascertained with certainty.

If this large class of creditors—those for return premiums—would consent to such a provision for their protection—and none could doubt that it would be everyway for their interest to do so—the assets liable for the fire losses would be relieved, at once, of a large body of preferred creditors and the entire capital and surplus of the company would become *immediately available* for the benefit of the loss claimants, while, at the same time, subsequent losses—which are, of course, constantly occurring, under the policies of a company, throughout the country—would be prevented from still further burdening the fund.

If this large "re-insurance fund," due to policy holders for return premiums, could be so held for their protection, without injustice or loss to the burned policy holders, *why could not the company continue business for their benefit*—nay more, why could not the company, in continuing business, *render such assets as unpaid premiums, balances in the hands of agents, printed material, books, agency supplies and equipments, office furniture and fixtures, etc., immediately available for their full value!* In this way, everyone interested in the company would clearly be benefited, while *none would be injured.*

The idea was too apparent and forcible to be entertained by sagacious underwriters and financiers without fruition. Out of it was developed the Safety Fund Law of the State of New York—a law pronounced by one of the most intelligent of state insurance superintendents* to be "one of the most important laws in reference to the important subject of insurance ever enacted," and which has been the subject of high commendation by the press, throughout the country.

Out of this idea of providing for the immediate relief of the loss claimants—by removing and providing for the unburned policy holders—was developed still another and scarcely less important one—that of *providing, out of the profits of prosperous years, for the losses of exceptionally disastrous years,* like those of Chicago and Boston, which the experience and history of the country have taught men to expect, as liable to occur, at any time.

The plan devised for so admirable a purpose, looked equally to the interests of the burned and unburned policy holders, and the savings of such successful years were, accordingly, required to be divided into two equal sums—one, for the greater security of loss claimants, known as the **Guaranty Surplus Fund**, the other, for the better protection of the unburned policy holders, to form a new capital, in connection with the re-insurance fund, before referred to, and known as the **Special Reserve Fund.**

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* Hon. A. R. McGill, of Minnesota.

To secure the accumulation of these funds the law provides that, *no matter how profitable the business of any one year may be, a company shall not declare or pay to its stockholders a larger annual dividend than seven per cent. on the amount of its capital and surplus funds*, but shall set aside all the income of the company, beyond the percentage named, to form the two funds mentioned; and, as any company, by investing its capital, at simple interest, can secure seven per cent., it will be seen that the law virtually provides that *the entire profits of the business*, and a *portion of its income from investments, also*, shall be so set aside for the greater security of the assured.

It is, probably, due to this conservative provision, requiring, as might well be supposed, great self-denial on the part of stockholders, that only three companies, out of the whole number doing business in the United States, have, so far, complied with it; for the law is *a permissive one*, compulsory only upon those companies voluntarily submitting to it. Once placing themselves under its provisions, however, they cannot withdraw, and thus become committed to a conservative course.

It will not be surprising, judging from the past, if, at no distant day, the stockholders of companies refusing to submit to the Safety Fund Law do not find that they have been blinded by the temptation of dividing present gains, so as to overlook their duty to their patrons and customers, of whose interests they ought to regard themselves as trustees, and that, at the same time, they have overlooked the remote and indirect, but certain, advantage to themselves which would have accrued from the perpetuation of a company, in whose success and good name they might well be supposed to take some pride.

One great and important advantage secured by the law, in addition to those mentioned, is *that it prevents receiverships*, and that the losses of the company are to be adjusted and paid, *without expense to the claimants, by the officers of the company*—those who are naturally interested in preserving the good name of the company which must thus continue, and who, at the same time, are well qualified by experience, skill and familiarity with the business, to deal with such *fraudulent claims* as are so often boldly pressed upon an *inexperienced and, possibly, indifferent receiver, to the detriment of more honest and deserving claimants.*

The Continental, as before stated, was the first and largest of the three companies to comply with the requirements of the law, and its stockholders have a right to expect that their self-denial in foregoing extravagant but divisible dividends, out of the profits of successful years, will be appreciated by the insuring public, for whose greater security they have voluntarily taken such action.

That assurance may be made doubly sure, the officers, of the Company, in view of the practical lessons of the Chicago and Boston fires, *have reduced the amounts insured in the exposed portions of all of the large cities,* so as to make it more nearly certain that they cannot possibly, lose the amount of its capital by a fire in any one,* and they feel confident that, in the anxious days following the next great fire, when—as after the Chicago and Boston fires—it becomes important for agents to know which of the companies represented by them are solvent, *no intelligent agent of the Continental Insurance Company will think it necessary, either to telegraph or write to the main office for information as to the standing of the Company.* He will know that it is safe beyond a peradventure, and that it knows and can know "no such word as *fail!*"

SUMMING UP THE ADVANTAGES AND BENEFITS OF THE LAW.

That the agents of the Company may be the better qualified to explain the advantages of the law to property-holders, the following brief synopsis of its principal points has been prepared :

It benefits the assured who are claimants for losses at the time of a great fire:

FIRST.—In that it will render the following assets, (which have, hitherto, been essentially worthless in cases of bankruptcy, as already explained) *immediately available for their full value*, viz. :

Uncollected premiums.

Balances in the hands of agents.

Printed blanks, office furniture and fixtures, and material of the Company.

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* Even in the extensive "dry goods district" of New York (see note, page 103) the Company could not lose the amount of its capital, to say nothing of its large surplus.

SECOND.—No portion of the funds out of which claimants for losses are to be paid, *will be liable to any shrinkage on account of the sudden conversion of all the assets into cash*, as would be necessary in cases of bankruptcy when all assets have to be so converted and all obligations, including those for return premiums, have to be paid.

THIRD.—It will give these sums *without any abatement therefrom for Receivers' charges, Attorneys' fees, legal costs and other expenses of bankruptcy.*

FOURTH.—It will prevent any encroachment upon these funds for *later losses under uncanceled policies.*

FIFTH.—Instead of the creditors for unearned premiums becoming preferred creditors, as under other New York laws, the losers by fire occupy that position.

SIXTH.—It will secure *just and prompt adjustments and payments*, no matter how great the fire or loss.

SEVENTH.—It will, therefore, give the loss claimants more money than can be obtained under the requirements of other laws, and without any delay, *at a time when claimants need their money as at no other time in their experience.*

It benefits policy-holders whose property is not involved in such great fire—a hitherto neglected class:

FIRST.—It will give them *a deserved protection, for the full term of their policy contracts*, and provide for the payment of their later sustained losses, as if no great fire had occurred.

SECOND.—It will save them from vexatious and serious losses of time and money in seeking and paying for other and doubtful insurance, at a time when the rates charged by companies, on account of the disaster, are unusually high, while waiting indefinitely (and, perhaps, forever) for the return of what is due from the companies whose policies have become worthless.

THIRD.—It benefits institutions making investments on mortgages and who are interested in the permanency of the companies whose policies they hold as collateral security—such institutions as *Savings Banks*, *Life Insurance Companies*, *Trust Companies*, (buildings often form the greater part of their security), and *Executors and Administrators of estates.*

FOURTH.—It benefits the *owners of isolated risks, farmers, owners of property in small villages and towns, and the owners of mills and other special hazards.* Owing to the isolation of their risks *they cannot be sufferers by a fire large enough to fail a company*, as where a large city burns, and are, therefore, interested to see *that they do not lose the amount of premiums which they have paid for their insurance for an entire year or series of years, nor be liable to be without insurance for any period.* As the rates are higher on manufacturing risks than on other classes of property, and the amount of annual premium correspondingly large, it becomes a serious loss if the owner of a large mill, perhaps just after paying his premium for a full year ahead, finds himself under the necessity of paying the same, or a larger amount, over again and forced to await the tedious action of a Receiver, to recover what is to be refunded of the premium paid to the company rendered bankrupt.

It benefits Insurance Agents:

FIRST.—It will secure to them their *customers* and their *business.*

SECOND.—As the dividends permissible under this law are less than the income derived from the investments of the company, it will enable them to declare that the company for which they act, *does not divide one dollar of its profits on the business*, but that the whole of these and a *portion of its income from investments* are held for the additional security of the two classes of policy-holders named. *It will, therefore, help them to secure choicer business and to get adequate rates.*

It benefits the community at large:

It will secure the continuance of insurance companies, when without it, in the event of a great fire in some large city, there might be scarcely a company left solvent and *no capitalists found willing to peril new capitals.*

The failure of an insurance company is a national disaster.

"What the community, without this law, may suffer, under such circumstances, may be inferred from what has been. New York, in 1835, destroyed three-quarters of its insurance companies, and destroyed a large part of the capital of the remaining one-quarter. Again, in 1845, it destroyed a number of its strongest and most popular companies. Chicago, in 1871, destroyed sixty-eight companies and weakened greatly all that it did not destroy. Boston, in 1872, brought the list of bankruptcies up to one hundred. A fire in the New York of to-day, burning over less than one-half of the space ravaged by the Chicago fire, *would cause a loss equal to, at least, four times the amount of the capital chartered by, or represented in the State.*"

See, also, remarks under the head of IMPORTANCE OF FIRE INSURANCE, page 3.

It benefits the Company:

It will secure the continuance of their connections with their customers and their agents; the *good-will* of their business and the retention of business it has cost much time, labor and money to secure; the satisfaction of knowing, in the event of a great fire, that they have done for their insured *the very best that it was in their power to do*, and, in the meantime, they will have the advantage which will accrue to them from the appreciation of property holders, of the value to themselves, of the Safety Fund Law, and of the present sacrifices of the company to make these advantages secure to them.

It will do away with the necessity of making assessments upon stock-holders for new capital or to make up an impairment in case of a great fire, the Special Reserve fund being applicable for such purpose.

All of the business on the books of a company *has cost a large sum to secure it*, and *contains, also, an element of ultimate profit*, which, instead of being paid back to policy-holders (who are injured in common with the loss claimants by such payment) can be retained; and unless, by such process, it can be retained, it is lost to everybody, as much as if sunk in the sea.

It injures no one:

Not the claimants for losses who, in addition to the many advantages mentioned, clearly have accumulated for their benefit, one-half of all the profits of the business and a portion of the income from investments, *a sum which they would not have, under any other law.*

Not the unburned policy-holders, who are amply protected in every way.

Not the community at large, who are especially interested in the security of companies and their immunity from failure.

Not the insurance agent, who has everything to lose if his companies fail, and everything to gain if they do not.

How the Continental Insurance Company passed through the Chicago and Boston Fires.

The following, from the pamphlet on The Safety Fund Law, compiled in December, 1875—a copy of which was forwarded to each agent—shows what is thought of the Company by the directors and stockholders—*those who know most of its management:*

"The Continental, with the purpose of making itself strong for its policy holders, placed in its charter when the company was formed in 1852, the right to conduct its business upon what was afterwards known as the participation plan. Under this, it paid to its policy-holders nearly $1,000,000 on redeemed scrip issues, and when the Chicago fire of October 8, 1871, came, and the prairie fires of the same day came also, it had a still larger sum to assist in filling that frightful chasm which required the payment of *more than three and a quarter times its capital;* but which—an unprecedented feat in insurance history—it paid *and still lived.* On the 12th day of that October, and before the ashes of that conflagration had grown cold, the Board of Directors of the Company had determined to double its capital, and, before they adjourned, they made it certain that this would be done by subscribing for the whole sum. The entire subscription received for that $500,000 of additional capital *exceeded a million and a quarter.*

"Boston's burning, November 9, 1872, which cost the Company $500,000, came too soon to permit an accumulation of surplus to meet the entire loss, and when the Board of Directors met on the 13th of that month, they did not—as they might have done—abandon the business, or continue it upon a reduced capital, but they promptly determined to pay in an additional $400,000, *and confirmed their votes by subscribing for the whole sum before they left the place of meeting;* but again their action was thoroughly endorsed by the stockholders, and *more than a million was subscribed when but* $400,000 *could be received.*

"That the directors of the Continental company should be among the earliest to adopt any action that tended to solidity and conservatism is no longer a matter of surprise to its officers ; and *it is confidently believed that the course pursued in submitting to this law, surpasses what they have hitherto done for the better protection of their insured, and for the ultimate and permanent advantage of the Company.*"

COPY OF THE LAW.

CHAPTER 189 OF THE LAWS OF THE STATE OF NEW YORK.—SESSION OF 1874.

AN ACT TO PROVIDE SECURITY AGAINST EXTRAORDINARY CONFLAGRATIONS, AND FOR THE CREATION OF SAFETY FUNDS BY FIRE INSURANCE COMPANIES.

Passed April 16, 1874, *three-fifths being present.*

The People of the State of New York, represented in Senate and Assembly, do enact as follows :

SECTION 1. Hereafter it shall be lawful for any fire insurance company, organized under the laws of this State, to create the funds herein provided for, to be known and designated as the guaranty surplus fund and the special reserve fund, and to avail itself of the provisions of this act upon complying with the requirements thereof.

SEC. 2. **ANY FIRE INSURANCE COMPANY DESIRING TO CREATE SUCH FUNDS SHALL BE, AND IT IS HEREBY AUTHORIZED TO DO SO,** upon the adoption of a resolution by its board of directors, at a regular meeting thereof, and filing with the superintendent of the insurance department a copy thereof, declaring the desire and intention of such company to create such funds and to do business under the provisions of this act ; and as soon after the filing of such copy of the resolution as convenient, the superintendent shall make, or cause to be made, an examination of such company, and he shall make a certificate of the result thereof, which shall particularly set forth the amount of surplus funds held by such company at the date of such examination, which, under the provisions of this act, are to and may be equally divided between and be set apart to constitute said guaranty surplus and special reserve funds, which certificate shall be recorded in the insurance department ; and from and after the date of the recording of said certificate, **ALL THE POLICIES AND RENEWALS OF POLICIES ISSUED BY SAID COMPANY SHALL HAVE PRINTED THEREON BY SAID COMPANY**

A NOTICE THAT THE SAME ARE ISSUED UNDER AND IN PURSUANCE OF THIS ACT, referring to the same by its chapter, date and title, and such policies and renewals shall be deemed to have been issued and received subject to the provisions of this act.

SEC. 3. After the date mentioned, in any such resolution so passed and filed, IT SHALL NOT BE LAWFUL FOR SUCH COMPANY TO MAKE, DECLARE OR PAY, IN ANY FORM, ANY DIVIDEND UPON ITS CAPITAL STOCK EXCEEDING SEVEN PER CENT. PER ANNUM THEREUPON AND UPON THE SURPLUS FUNDS TO BE FORMED HEREUNDER, until after its guaranty surplus fund and its special reserve fund shall have together accumulated to an amount EQUAL TO ITS SAID CAPITAL STOCK; and the entire surplus profits of such company above such annual dividend of seven per cent. shall be EQUALLY DIVIDED between and be set apart TO CONSTITUTE THE SAID GUARANTY SURPLUS FUND AND THE SAID SPECIAL RESERVE FUND, which said funds shall be held and used as hereinafter provided, and not otherwise, and any company doing business under this act, which shall declare or pay any dividend contrary to the provisions herein contained, shall be liable to be proceeded against by the attorney-general for its dissolution.

SEC. 4. Said **guaranty surplus fund** shall be held and invested by such company the same as its capital stock and surplus accumulation, and SHALL BE LIABLE AND APPLICABLE IN THE SAME MANNER AS THE CAPITAL STOCK TO THE PAYMENT GENERALLY OF THE LOSSES OF SUCH COMPANY.

SEC. 5. Said **special reserve fund** shall be invested according to existing laws relating to investments of capital by fire insurance companies, and shall be deposited, from time to time, as the same shall accumulate and be invested, with the superintendent of the insurance department, who shall permit the company depositing the same to change such deposits by substituting for those withdrawn others of equal amount and value, and to collect and receive the interest or dividends upon such securities as the same may accrue; and SUCH SPECIAL RESERVE FUND SHALL BE DEEMED A FUND CONTRIBUTED BY THE STOCKHOLDERS TO PROTECT SUCH COMPANY AND ITS POLICY-HOLDERS OTHER THAN CLAIMANTS FOR LOSSES ALREADY EXISTING, OR THEN INCURRED, in case of such extraordinary conflagration or conflagrations as hereinafter mentioned; and SAID FUND SHALL NOT BE REGARDED AS ANY PART OR

PORTION OF THE ASSETS IN POSSESSION OF SAID COMPANY, SO AS TO BE OR RENDER THE SAME LIABLE FOR ANY CLAIM OR CLAIMS FOR LOSS BY FIRE OR OTHERWISE, EXCEPT AS HEREIN PROVIDED.

Sec. 6. In ESTIMATING THE PROFIT OF ANY SUCH COMPANY FOR THE PURPOSE OF MAKING A DIVISION THEREOF between said guaranty surplus fund and such special reserve fund, THERE SHALL BE DEDUCTED FROM THE GROSS ASSETS OF THE COMPANY, including, for this purpose, the amount of the special reserve fund, the sum of the following items: First, the amount of ALL OUTSTANDING CLAIMS; Second, an amount sufficient to meet the liability of such company for THE UNEARNED PREMIUMS UPON ITS UNEXPIRED POLICIES, which amount shall be at least equal to one-half of the premiums received on policies having less than one year to run from date of policy, and a *pro rata* proportion of the premiums received on the policies having more than one year to run from date of policy, and shall be known as the re-insurance liability; Third, the AMOUNT OF ITS GUARANTY SURPLUS FUND and of its SPECIAL RESERVE FUND; Fourth, the amount of the CAPITAL OF THE COMPANY, and Fifth, INTEREST AT THE RATE OF SEVEN PER CENT. PER ANNUM UPON THE AMOUNT OF THE CAPITAL AND OF THE SAID FUNDS FOR WHATEVER TIME SHALL HAVE ELAPSED SINCE THE LAST PRECEDING CASH DIVIDEND; and THE BALANCE SHALL CONSTITUTE THE NET SURPLUS OF THE COMPANY SUBJECT TO AN EQUAL DIVISION BETWEEN THE SAID FUNDS AS HEREIN PROVIDED.

Sec. 7. **In the event of any extensive conflagration,** or conflagrations, whereby the claims upon such company shall exceed the amount of its capital stock and of the guaranty surplus fund provided for by this act, the said company shall notify the said superintendent of the fact, who shall then make, or cause to be made, an examination of said company, and shall issue his certificate of the result, showing the amounts of capital, of guaranty surplus fund, of special reserve fund, of re-insurance liability, and of other assets, and upon his issuing such certificate in duplicate, one copy to be given the company and one to be recorded in the insurance department, the said SPECIAL RESERVE FUND SHALL BE IMMEDIATELY HELD TO PROTECT ALL POLICY-HOLDERS OF SAID COMPANY OTHER THAN SUCH AS ARE CLAIMANTS UPON IT AT THE TIME, OR SUCH AS BECAME SUCH CLAIMANTS IN CONSEQUENCE OF

SUCH CONFLAGRATION OR CONFLAGRATIONS; and the amount of said special reserve fund AND AN AMOUNT EQUAL TO THE UNEARNED PREMIUMS OF SUCH COMPANY, to be ascertained as hereinbefore provided, shall constitute the capital and assets of such company for the protection of policy-holders other than such claimants, and for the further conduct of its business; and such official certificate of the superintendent shall be binding and conclusive upon all parties interested in such company, whether as stockholders, creditors, or policy-holders, and upon the payment to the claimants, for losses or otherwise, existing at the time of or caused by such general conflagration or conflagrations, of the amount to which they are respectively entitled, in proportion to their several claims, of the full sum of the capital of such company, and of its guaranty surplus fund, and of its assets, excepting only such special reserve fund and an amonnt of its assets equal to the liability of the company for unearned premiums as so certified by such superintendent, such company shall be forever discharged from any and all further liability to such claimants and to each of them; and the said superintendent shall, after issuing his said certificate, upon the demand of such company, transfer to it all such securities as shall have been deposited with him by such company as such special reserve fund; and IF THE AMOUNT OF SUCH SPECIAL RESERVE FUND BE LESS THAN FIFTY PER CENT. OF THE FULL AMOUNT OF THE CAPITAL OF THE COMPANY, A REQUISITION SHALL BE ISSUED BY THE SAID SUPERINTENDENT UPON THE STOCKHOLDERS TO MAKE UP SUCH CAPITAL TO THAT PROPORTION OF ITS FULL AMOUNT, in the manner now provided by law in the case of companies with impaired capitals; and provided further, that any capital so impaired shall be made up to at least the sum of $200,000; and in case said company, after such requisition, shall fail to make up its capital to at least said amount of $200,000 as therein directed, said special reserve fund shall still be held as security and liable for any and all losses occurring upon policies of such company after such conflagration or conflagrations. Such company shall, in its annual statement to the insurance department of this state, set forth the amount of such special reserve fund and of its guaranty surplus fund.

SEC. 8. If at any time after said special reserve fund shall have been accumulated by any company it shall appear, upon examination by the said superintendent, that the capital of such company has, in the absence of any such extensive conflagration, become impaired so as to cause him to order a call upon the stockholders to make up such impairment, the board of directors of such company may either comply with such order and require the necessary payment by the stockholders, or at their option, they may apply for that purpose so much of said special reserve fund as will make such impairment good. NO COMPANY DOING BUSINESS UNDER THIS ACT SHALL INSURE ANY LARGER AMOUNT UPON ANY SINGLE RISK THAN IS PERMITTED BY LAW TO A COMPANY POSSESSING THE SAME AMOUNT OF CAPITAL IRRESPECTIVE OF THE FUNDS HEREBY PROVIDED FOR.

SEC. 9. This act shall take effect immediately.

OPINIONS OF THE PRESS

As to the Safety Fund Law of the State of New York.

The following extracts from leading editorials of able journals, throughout the country, will indicate the thoroughness with which this important measure has been discussed and the unanimity of public opinion on the subject.

The articles, from which these brief extracts have been selected, will be found, *in extenso*, in the interesting pamphlet prepared for the Company, copies of which were sent to all of its agents, in January, 1876.

As to the benefits to policy-holders involved in a great fire.

From the New York Tribune, April 26, 1875.

When a fire takes place the owner of the burned property is in extreme need of money. "*He usually wants it as he has never in his life wanted it before.* The more extensive the fire, the greater and more wide-spread is this need." But how, under the old system, can he have his necessities relieved? "Until the passage, by the New York legislature, of the act known as the 'Surplus Law,' on April 16, 1874, there was no provision for this contingency. With such results as happened under the former state of affairs, *insurance was not worthy of the name.*"

From the New York Daily Times, April 13, 1875.

"It has been urged that the 'burned' policy-holder gets a less percentage, if this plan of a special reserve has been adopted, than if all the surplus were classed with the capital in the payment of losses. This is incorrect, as the special reserve is composed of money, *that would have been paid to stockholders in dividends if not devoted to this use,* and the 'burned' policy-holders' percentage is actually greater than it would otherwise be, because, *for every dollar in the special reserve fund, one is put in the guaranty fund, which is also diverted from its original destination of dividends.*"

From the New York Daily Tribune, January 20, 1874.

"To the unfortunate whose property is involved in the conflagration, which would otherwise bankrupt the company, the advantage is equally plain. Instead of having a capital *only* to rely upon, he has, in addition to that, *an amount of surplus just as large as the success of the company and the lapse of years produce—a surplus which, without this plan, he would not have.* In addition to this, and, perhaps, more important, the loser in a great conflagration gets what is coming to him with *greater promptness,* and without the shrinkages and delays inseparable from receiverships. Under such a law a *company would administer upon its own estate and its expectation of future business, and the necessity of fair credit to enable it to obtain that business, would compel prompt and honorable action.*"

From the American Exchange and Review, (*Phila.,*) *April,* 1875.

"Should it be objected that such division of the assets keeps the loss claimants from sharing in a large portion of the assets, we answer, that *without the surplus arrangement the unshared assets would not have been there to share in, and it is a useless business to count chickens that never could have been hatched!*"

From the Spectator, (*N. Y.*) *March,* 1874.

"Another good for claimants for losses is that, *as the company is not obliged to wind up its affairs, no contraction of assets, on account of its collapse, takes place;* no emoluments to Receivers diminish these assets; no long delays in the adjustment and payment of whatever the company's condition enables it to pay, can occur. The *assets representing the unearned premiums are not to be turned into money, nor are those which represent the special reserve fund; and this makes it comparatively easy for the company to realize enough cash to meet its liabilities to losers promptly.*"

From the New York Tribune, April 26, 1875.

"What seems to be needed is that the force of public opinion be brought to bear on unwilling boards and stockholders who hesitate about practicing self-denial. In this matter the interests of the public and the companies are one. Neither can afford, in the event of a great fire, to be at the mercy of Receivers, *to whom procrastination is more profitable than settlement* "

From the Journal of Commerce, (N. Y.) January 14, 1875.

"It has a further very decided advantage, that it enables the insured—who have claims on a company that would, otherwise, at such a time of great losses, go into liquidation in the hands of a Receiver—to effect a prompt settlement, as the special reserve, like a newly subscribed capital, will come in to carry on the business, and to apply the old *capital and guaranty surplus at once to the claims then due.*"

From the N. Y. Daily Bulletin, March 25, 1875.

"We are satisfied, from careful examination, that if all the companies should accept the Surplus law, it will prove in case of a catastrophe, that, *in at least nine cases out of ten, more money will be paid to losers by fire than the same companies would pay under any other yet devised law;* and in every case there is the guaranty of a *promptness of payment that no other plan can give;* and, besides this, by this law there is provided a certainty of preventing additional claims upon the assets of a company involved in a great fire, for *further losses by the burning of risks covered by uncanceled policies.*"

As to the benefits to policy-holders not involved in a great fire.

From the Annual Report of Hon. A. R. McGill, Insurance Commissioner of Minnesota, June 1, 1875.

"The holders of policies on property not burned, at the time of a great fire, are put to serious inconvenience and loss. These policy holders are numbered by hundreds of thousands, and *while the individual amounts are not great, the aggregate is very large.* The unearned premiums of what are known as the Agency Companies are not less than $35,000,000, and, great as this sum is, it does not represent the amount of derangement, trouble and loss that this great number of policy-holders suffer under such circumstances. They have to search for other insurance, where and at what price they can find it; *many of them have to travel far and to lay aside important occupations to do this.* All of them have to wait, almost interminably, before they receive any part of the amount due to them from the failed company, and their new and unexpected payments of premiums are often a material inconvenience. *Some of them only learn of the inability of the companies whose policies they hold, when, their property having been burned,* their expectations of prompt restitution are met by the promise of insufficient payment after indefinite delay. This is the history of claimants against over 100 companies which became bankrupt in Chicago and Boston."

From the New York Tribune, January 20, 1874.

"The policy-holders who do not suffer loss by a great fire, like that of Chicago or Boston, are to be benefitted. By the adoption of this plan they will be saved the necessity, after such a fire, of remaining for many days in doubt of their insurance, or the worse alternative of seeking new insurance in an unknown company, *at any rate of premium which the stress of the occasion may enable it to exact.*"

From the Spectator, March, 1874.

"The gain to policy-holders not being claimants for losses by such great disaster is plain, for *they do not lose the premiums they have paid* for insurance, nor have to wait until some unknown future event for a *Receiver who makes more by delay than by promptness*, to pay back some larger or smaller parts of them; *nor are they ever without insurance, for, as soon as the losses of the Company exceed its capital and its surplus for their payment, their property is under the protection of the reserve fund.*"

From the Age (*New York*), *April* 30, 1875.

"Those who, after each or either of the late great fires, found themselves under the necessity of scurrying around after fourth-rate companies, in order to pay increased rates for insurance, to supplant that which had just slid so unexpectedly and hopelessly from under them, will not be slow to appreciate the convenience of a plan which under identical circumstances, would leave their status toward their indemnity, if not wholly unchanged, at least not seriously affected. The company might be exhausted—its last dollar of common capital, common assets, and common reserve, swept away by some sweeping conflagration; but their share of the security guaranteed by the special safety fund, remains almost as little affected as before."

From the Baltimore Underwriter, September 16, 1875.

"*It is of peculiar value to a farming community,* and to all cities and towns which are not so great as to have within themselves so much property, as would, if burned, cause the bankruptcy of insurance companies."

From the Safeguard (*New York*), *May*, 1875.

(Well known as the organ of the Savings Banks.)

"Our subscribers (*savings banks*) have a peculiar interest in this question; they are compelled to invest largely in bonds and mortgages, and *buildings often form the greater part of their security;* they have had experience as to the effect of great fires, and they know the haste and anxiety with which after the Chicago and Boston fires they examined the policies they held and sought for others, often doubtful where to go. *If there is anything better than the old hap-hazard system, they want it, and insurance companies may be sure they will have it.* We have studied the law in the light of all the objections made to it, and in the case under review have, we think, met every point adversely criticised. Thus far our closest examination shows all other systems far inferior to the Surplus Law. *We yield great credit to the institutions which have voluntarily bound themselves to restrict the dividends they might, otherwise, make, that they may the better protect their policy-holders.*"

From the Journal of Commerce (N. Y.) January 14, 1875.

"A very important act was passed by the last Legislature of this State concerning the accumulations of fire insurance companies. * * * When a great loss has impaired the capital of a company, the policy-holders whose property is still intact are forced to re-insure at once, or to wait with limited protection until a fresh subscription is made up for their security. But in the plan proposed *there is a special reserve awaiting the contingency, and self-adjusting to the need at the critical moment.*"

As to the benefits to the Community at large.

From the New York Tribune, April 26, 1875.

"Every loss makes the community on which it falls by so much the poorer. The ruin of an insurance company extinguishes a large amount of wealth, aside from its lost capital and surplus, and dues in course of collection, for its business has usually cost nearly a third of whatever was received in premiums; what in mercantile phrase is known as the good will—the good name that is better than riches—is real wealth, and its destruction is actual and widespread loss."

From the third Annual Report of Superintendent Chapman, of New York, issued February 15, 1875.

"Not the companies alone, *but every individual policy-holder, whether in city or country*, has an affirmative interest in this question. His company, carrying its thousands of risks, by reason of some devastating city conflagration, is rendered bankrupt. The rich and the poor are alike sufferers, *in losing a protection for which they have paid;* and thus it happens always, that *an honest company's failure becomes, in very truth, a public disaster.*"

From the American Exchange and Review, July, 1875.

"Outside of all question, as between stockholder and policy-holder, and between stockholder and company, the surplus law re-affirms, with new emphasis, the position that *the insurance institution is part of the general security of the public.* The subservience of the ends of individuals but in part fulfills the far-reaching ends of insurance. Insurance is *part of commerce* and *part of industry;* it manufactures, it sails ships, builds houses, raises crops, transfers merchandise. While the individual is not called upon to make sacrifice for the public, the public is not called upon to make sacrifice for the aggrandizement of the individual. Our finance and our trade want at their bases fire insurance companies stronger and stronger still. The surplus law pleads with stockholder and policy-holder that such strength may be permitted to be, and draw its existence from noble compromise and honorable adjustment.

"*The loan by which the builder builds, and many a man holds his home, the safety of creditors of the insured*—largely the safety of the general crediting public—*the dependence of the consignor upon the consignee,* the confidence in which the producing capitalist does his work, are all bettered and benefited by the new safeguard the law itself makes."

From the Chronicle of March 18*th,* 1875.

"The New York surplus law *is calculated to make companies strong,* not at the expense of their policy-holders, but *at the expense of their stockholders,* and *strong companies are what the public want,* first and foremost. We do not want, after every great fire, to rely for insurance upon such ephemeral growths as have sprung up within the past few years, without character, or ability, or assets, *while we permit our great corporations, well officered and well managed, to drift into bankruptcy and perish in the hands of receivers.*"

From the Investigator (*Chicago*) *April,* 1875.

"Without the indemnity in case of loss, which our policies are supposed to guarantee us, the *wheels of business would be clogged.*"

From the Expositor (*Phila.*) *April, May,* 1875.

"*It will strengthen the whole structure of fire insurance, add security to fire underwriting, beget confidence among the masses, suppress speculation at the expense of policy-holders,* and will soon render bankruptcy proceedings and receivers things of the past. We heartily endorse the law in all its details."

From the N. Y. Daily Tribune, May 22, 1875.

"*The assets of the insurance companies constitute the security of the insuring public.* Whatever tends to the increase of such assets, is for the advantage of that public."

As to the benefits to an Insurance Agent.

From the Index (Boston and Cincinnati,) January, 1875.

"It has often happened that *large losses, at some point far distant from their own field*, and *for which they are in no way responsible*, have ruined the companies they represented, and, in consequence, destroyed the business they had built up through years of arduous labor."

From the N. Y. World, March 6, 1874.

"The advantage to agents is that *they can keep on with their business without a day's interruption.*"

From the American Exchange and Review, July, 1875.

"To the honest agent, we think the new law ought to come as a positive relief and rescue. It will greatly aid him in maintaining the business his labors have built up. It gives him companies of assured status and permanence. As it is, nearly every agent can look back upon the memory of dead and gone corporations which he has represented in times past, and the unpleasant reminiscences of whose departure do not improve his personal reputation. To remove the odium of foisting swindles upon his customers is a consideration he cannot afford to ignore. *His moral responsibility is far greater than his legal one, and he should judge the new law by the claims of his moral position upon his actions.* He has been much abused by premium-payers who have paid their money to him in vain; *the time is now coming for him to deserve such condemnation if he does not avoid it.*"

From the Chronicle (New York,) April 1, 1875.

"The law serves as a surety to agents that *their labor shall not be lost*, and that *they have a company which cannot be, by a large fire, rendered unable to protect their customers.* The law, therefore, commends itself to all insurance agents who remember 1871 and 1872, and the action of failed companies which followed these years."

As to the benefits to the Company.

From the Spectator, March, 1874.

"The advantages to the companies themselves appear to be *less extensive and valuable than are those to all other parties in interest.* If we could only be sure that great fires will not follow each other in such rapid succession as in the case of Chicago and Boston, there would be less difficulty in discovering the advantages which the companies will derive. It may not be possible to guard against the ill effects of such a multiplication of misfortunes, but it is well worth an effort."

From the American Exchange and Review (Phila.) April, 1875.

"Under the New York Surplus Law the stockholder is compensated for the withdrawal of opportunity for speculative rates of dividend by *the enhanced security of the capital.* Fire insurance stock, under such a regulation, becomes to the capitalist a legitimate investment, not a reckless venture; *and the character of the underwriting is apt to accord with the character of the capital securing it.* Literally, the law aims to secure the policy-holder by securing the company; but it should require no explanation to show that *if permanent companies are to replace the present fleeting ones, the policy-holders will have no inferior security to grieve over!"*

From the Index (Boston and Cincinnati) January, 1875.

"The law is a benefit to the company in its preservation of the company's connections with customers and agents, and the retention of business to secure which, much time, labor and money have been expended.

"This has cost, including agents' commissions, brokerage, taxes, &c., &c., an average of 33⅓ per cent. upon the premiums received, to place that business upon the books. Under the older law, these unearned premiums must be returned to the several parties insured. *They also lose whatever profits may be made out of the business,* which ought to range between 40 and 50 per cent. of the whole sum of unearned premiums."

From the New York World, March 6, 1874

"The advantage to stockholders is that, though they make a sacrifice of present profits, they continue to get a fair interest on the accumulations, are not worried for fear that the company will be swept away by a great fire, are not in imminent danger of being *assessed for impairment of capital*, and that they see their company continually *growing stronger and stronger, and attracting the best business and the highest prices, because it offers the surest indemnity.*"

As to the probabilities of another great fire.

From the Annual Report of Hon. A. R. McGill, Insurance Commissioner of Minnesota, June 1, 1875.

"*While cities continue to be built as they are now built,* the expectation of the companies ought to include a repetition of their experience of Chicago and Boston, at irregular, but not very distant intervals."

From the Safeguard (N. Y.) June, 1875.

"Just as fast as it comes to be realized that the burning of a mile square of New York city's business houses will land many, if not all of its companies, whether local or agency, in bankruptcy, will policy-holders learn to appreciate the security this law affords.

"The effect of such a fire as *may* happen upon the unburned policy-holders and mortgagees, is fearful to contemplate. *It is not impossible for such a loss to take place as will practically annihilate the companies*, and, in the absence of compliance with this law, leave no insurance companies, and *leave no disposition to form others.*"

From the Spectator, (N. Y.) April, 1875.

"The district feared in the city of New York, beyond any other, is the dry goods district. If it unfortunately burns, policy-holders down town among the groceries and heavier business generally, will want the protection this law affords, and so will the uptown region of dwellings and small stores; and so will the region of storage stores on the east side, and along the wharves of Brooklyn, and so will every place in town and out of town, except that
urned. The capitalization law permits an advance in the amount
n upon single risks by any company availing itself of its pro-
ienc The surplus act expressly stipulates the contrary. The
nd the ac ake a company to be relatively stronger; the latter

From the Circular of the Company, issued June 5, 1875.

"During the insurance experience of the president of the Continental Insurance Company in connection with two companies, both of which are still in existence, he found one of them in December, 1835, losing three-fourths of all it possessed, and again in 1845, it had a similar experience. In 1871, he found the other company sustaining a loss equal *to more than three times its capital of* $500,000, and in 1872, losing in another single fire an additional $500,000. During that same experience he has known of at least ten fires, in all of which local companies were made bankrupt, and in several of which companies represented at the seat of the fire by agents, shared the same fate."

It prevents reckless underwriting and unsafe lines.

From the Index (Boston and Cincinnati,) May, 1875.

"Although these funds are set aside and are bound to be maintained, *the company is prohibited from writing one cent more on risks than the capital originally paid in, in cash, justifies it in writing.* And this is the contrast which this law presents to the capitalization law's method of opening the door to reckless underwriting!"

From the New York Daily Times, April 13, 1875.

"The difference between the policies of different fire insurance companies was well illustrated by a dialogue which took place between the presidents of two New York companies, shortly after the Boston fire in 1871. It was as follows—names being suppressed for obvious reasons:—'What changes the great fires make in the policies of insurance companies,' said one. 'Well, how do you mean?' asked the other. 'Why,' replied the first, 'after the Chicago fire, we reduced our line of underwriting in New York, one-quarter. After the Boston fire we reduced one-third, so that we now only insure one-half as largely as we did last year.'

"'Well, we do not pursue that policy; if there comes such a fire in New York as there was in Chicago, you would fail, would you not?' 'Yes,' replied the conservative officer, 'we would.' 'So would we, and *as we cannot any more than fail, I propose to make all I can while we are alive.*' 'My friend, I should have one advantage over you if we should both fail.' 'What advantage?' '*I should pay a larger dividend to my creditors.*'

"The two different lines of policy thus indicated are both provided for in their workings by law. The one can be prosecuted under the Capitalization law and the other under the New Surplus law. They are diametrically opposed in principle, and any insurance company can avail itself of the workings of either."

From the Chronicle (*N. Y.*) *October* 15, 1873.

"Wealth is always conservative, and *especially wealth accumulated by degrees,* as such a law would cause it to be produced, and companies, instead of hazarding their capital upon two or three blocks, would take such lines only as they could justify, no matter how far a fire should extend."

It prevents over-valuation of assets.

From the third Annual Report of Superintendent Chapman, of New York, issued February 15, 1875.

"Instead of rating up assets to the highest possible figure, in order to meet an accustomed dividend, they should occasionally be rated down. In the hour of prosperity, a judicious shrinkage of values to *a conservative basis, upon which they must surely stand when the hour of trial comes,* may furnish sufficient buoyancy to tide them over some coming calamity."

From the Index (*Boston and Cincinnati,*) *January*, 1875.

"*The struggle now is to make the best possible showing,* and, as a consequence, assets are often magnified in every possible manner, and, so that their statements pass the ordeal of examination by the insurance department, it matters little to the officers of some companies, at least, how they are made up. Very few companies admit a liability equal to 55 or 60 per cent. of their annual receipts, while a large proportion state them below 45 per cent. *Under the Surplus Law, there will be an ever-pressing inducement to state the condition of a company as it really is,* for if the assets are worth more than they are represented to be, the *law provides that the claimants for losses shall get the benefit of the greater value;* if the assets are magnified and *liabilities reduced* it is but reasonable that the insurance department shall say, '*These are your own valuations,* and the department will not take the responsibility of reducing your own estimate of your assets or increasing your estimate of the unearned premium liabilities, to the injury of your company's creditors.'"

It corrects the great evil of declaring and paying unearned dividends to stockholders.

From the American Exchange and Review, July, 1875.

"*The dividend system under old laws is 'a gathering of unripe fruit;*' and the policy of dividing liabilities over a succession of years, with a corresponding provision for their liquidation, is pronounced 'the true ideal of insurance equity.'"

From the United States Review (*Phila.*) *March* 1, 1875.

"But even ample rates will not make a company practicably infallible; somehow it has always been a chronic habit of stockholders (and very naturally) to discover a virtue in pocketing all possible gains."

From the Saturday Leader (*N. Y.*) *June* 5, 1875.

"It provides additional security for the policy-holders, and *puts a stop to the swindling practice, now grown too common, of dividing up all the profits, in prosperous times, and refusing payment for losses in unprosperous times.*"

It renders assets which have been hitherto unavailable at once available for their full value.

From the Safeguard (*New York*), *June,* 1875.

"By submission to the law the business of the company is saved. The unearned premiums, an item of assets, to secure which has cost the company one-third of their amount, and *which contain an element of profit to be realized if retained,* become a clear loss to the company, *without benefiting anybody else.* Under the old law they have to be paid over again, by the assured to some other company. 'It is a blotting out of an item of value which is intangible and useless to all except the company itself.'"

From the Index (Boston and Cincinnati,) January, 1875.

The writer shows the value to companies, under the law, of being able to retain the business on the books, represented as unearned premiums, and adds :

"This has cost, including agents' commissions, brokerage, taxes, &c., &c., an average of 33⅓ per cent. upon the premiums received, to place that business upon the books. Under the older law, these unearned premiums must be returned to the several parties insured.

"The companies, therefore, lose *their advances*, the claimants for losses by the great fire receive no benefit from them, and the insured, *who are entitled to return premium, have to pay away the whole amount of it, and more, to secure a new policy* in such other company as may be found solvent. Neither of these parties, it will be seen, gain by this transaction, but *all lose.* Under the provisions of the Surplus Law, none of these parties will lose, but all will gain ; the gain to the companies being not only the saving of the cost of the business and the return premium, but *whatever profits may be made out of the business,* which ought to range between 40 and 50 per cent. of the whole of unearned premiums."

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